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ACUTE PANCREATITIS: SYMPTOMS AND TREATMENT.

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In my thesis for admission to the American Association of Obstetricians and Gynecologists in September, 1906, published in the *American Journal of Obstetrics,* Vol. LIV, No. 6, titled, "Acute Pancreatitis, with a Report of Five Cases," I made the following statement:

"Chemical analyses, as now understood in pancreatitis, are frequently misleading, and as a result of these conflicting chemical conditions, symptomatology must for the present be relied upon by us in urging our patients to submit to an abdominal section which smatters somewhat of an exploration."

I am now more than willing to withdraw this statement, as the Cammidge urine reaction C has been proven in the past two or three years to be overwhelmingly satisfactory in making our deductions for diagnosis, especially so when the history and other analyses are well taken and made. This remark applies to those acute, sub-acute and chronic cases in which time for analysis of the urine and excreta does not endanger the patient's chances for an operative recovery, and does not apply to those cases of acute hemorrhagic pancreatitis in which the onset is one of intense or acute abdominal shock, where the necessary delay of twelve to twenty-four hours for the collection of urine, and the subsequent twenty to twenty-four hours for developing the Cammidge reaction, would jeopardize the patient's life to such an extent as to reduce his operative recovery chances to almost nothing. It is this latter variety in which often the exploratory operation is necessary to develop a diagnosis due in a great degree to the very fact that time cannot be given for the Cammidge test. Furthermore, the difficulties in making a definite diagnosis in the ultra-acute stage, or onset, of this disease are multiplied by the contiguity of the trinity of frequently invaded organs or viscera in this small area. This trinity consists of the pylorus, the gall-bladder and its ducts, and the head of the pancreas with its most vulnerable area, so thoroughly defined by Dr. William Mayo.

This space I described in the thesis quoted as being an area irregularly pyramidal in shape, the base not exceeding three inches square, largely to the right of the median line in the normal human subject, with the apex surrounded by the common biliary duct, head of the pancreas, the duodenal end of the stomach and the first portion of the duodenum.

The difficulty of clinically establishing an absolute diagnosis of disease invading one of the structures mentioned as forming the boundary of the apex of the pyramid can readily be understood, and therefore it is manifestly important that all aids in the chemistry of digestion and the excreta be called into play.

I also quote Robson and Cammidge, Preface page 11: "In our own practice we never rely upon the 'Pancreatic' reaction alone in making a diagnosis of pancreatitis or malignant disease of the pancreas, but always take into account the results of a complete analysis of the urine and a chemical examination of the feces, as well as the clinical symptoms; it is from neglect of these precautions, and under the false notion that the 'pancreatic' reaction was claimed to be pathognomonic, that the mistakes made by some writers have arisen.

The analysis of the stools have shown undigested muscle fibers, and although this condition exists in other abdominal lesions, its frequency in pancreatitis is sufficient to lend evidence as a factor in the symptom complex. Fatty, or butter or oily stools also are in evidence as factors. Then large spongy stools, much larger in quantity than the food intake would warrant in healthy beings, are also in evidence. These latter evidences have a decided bearing in chronic or subacute pancreatitis only.

The urine, in addition to giving the Cammidge reaction, has been found quite frequently to contain sugar. I have previously reported five cases, synopses of which I shall incorporate in this paper, all

* Read before the Surgical Section of the New York Academy of Medicine, March 5th, 1909, and the Williamsburgh Medical Society, March 8th, 1909.

without any evidences of sugar before or after the onset, and will add a sixth case, one of acute hemorrhagic pancreatitis, with no sugar. Dr. Thayer—*Johns Hopkins Bulletin,* November 5th, 1906—reports a series of five cases, with no sugar. I am inclined to look upon the evidence or absence of sugar in acute cases only as a coincidence, and not as a distinct evidence.

Hewlett's lipase findings (see Thayer article) was a constant factor in all cases of insult to the pancreas, but this reaction also requires a complex chemical outfit and process, with a period of more than twenty hours actual preparation, and therefore is negatived as of value in the ultra-acute cases.

Causation:—The duct of Wirsung is without question a very frequent source of entry of infection. One of the hemorrhagic cases reported in this paper presented two small biliary calculi (upon autopsy) in the duct of Wirsung. Gallstones were found plugging the Vaterian papillus, causing a damming back of bile into the duct of Wirsung, or Santorini. In addition, traumatism, alcoholism and arteriofibrosis are also factors.

Cause of death in the acute cases has been summaried by Doberauer (*Beit. Z. klinische Chir.,* Von Bruns Tubiger, Vol. XLVIII, No. 2) in an analysis of six acute cases, and thirty-five experiments on dogs, as due to a toxin; and Guleke demonstrates, in his experiments quoted above, that in acute necrosis cases, death is due to intoxication with trypsin.

In the six cases reported or referred to in this paper as occurring in my practice, four were hemorhagic—two living—while the remaining two resulted in abscess formation—one living. In one of the hemorrhagic cases the pancreas was almost completely destroyed; its former site being occupied by blood clot. None of these cases were accompanied with any slough, although sloughing is one of the terminations of an acute inflammation of this viscus.

Two of the patients were males, four being females. None were alcoholics, nor syphilitics. Two, females, were under thirty-three; the remaining four were over forty years of age.

Symptoms.—The onset of this condition is usually a sharp pain, accompanied with varying degrees of shock, rapidly followed in some cases by a profound toxemia, denoted or characterized by a peculiar cyanosis and lividity, with shallow breathing and rapid pulse. Halstead also calls attention to the lividity of the face and abdominal wall.

The pain is frequently of a far more intense degree than that of appendicitis or gastric perforation, etc.; in fact, my suspicions were aroused in two of my cases by the large quantities of morphia used by the family physicians to control the pain.

Hiccough is a symptom of relative frequency and persistence; there is vomiting with and following the pain onset. Pain in the back, of an intense splitting character, has been evident in four of my cases. Pain as a symptom was also spoken of by Halstead as being more severe than that of gallstone colic. These symptoms, when considered with a history of previous digestive disturbances and gall-bladder or duct invasions, should cause us to give the subject of pancreatitis great weight.

Fitz's rule (Robson and Cammidge, page 399) is worth bearing in mind: "Acute pancreatitis is to be suspected when a previously healthy person, or sufferer from occasional attacks of indigestion, is suddenly seized with violent pain in the epigastrium, followed by vomiting and collapse, and, in the course of twenty-four hours, by a circumscribed epigastric swelling, tympanitic or resistant, with slight rise of temperature."

The subsequent manifestations are those of any ordinary peritonitis, *i. e.,* abdominal distension, obstruction due either to pancreatic pressure or intestinal paresis. Later, a tumor formation anywhere in the epigastric, or rather, supra-umbilical zone.

Treatment.—If in doubt, explore. If upon exploration we meet with a peculiar bloody, beef-broth like serum, or peculiar warty, yellowish-white plaques (fat necrosis) upon the omentum or mesentery (provided no strangulations exist as a cause of this bloody serum), we can safely extend our search to the pancreas.

If an acutely hemorrhagic, enlarged pancreas be found, an incision should be made in its coat of peritoneum, and a puncture or punctures made in the pancreas itself. Gauze, or other drains, should be placed in and about these incised and punctured areas.

If gangrenous or suppurative, drainage sufficiently free to allow of ready expulsion of the sloughing material and drainage of the pus should be provided, either by the anterior route, or in the costa-vertebral angle, although I feel that better and less dangerous work can be done by the anterior route.

The question of doing a cholecystotomy or not is one that each individual case itself will present for consideration.

In the six cases reported in this paper the gall-bladder was drained three times, each time for large numbers of stones. In one of the remaining cases it was palpated and inspected without being drained. In the remaining two cases it was not

seen, owing to the pus collection being well to the left.

Two of the cholecystotomy cases died and one recovered, while two of the remaining cases recovered, and the third died weeks later from exhaustion and multiple infective abscesses.

Synopsis of cases previously reported in the *American Journal of Obstetrics,* Vol. LIV, No. 6.

CASE I.—ACUTE HEMORRHAGIC PANCREATITIS: Cholecystotomy, 2,350 stones removed; intense pain onset; female, fifty-three years of age; corpulent; seen on the third day. Patient cyanosed, livid, pulse small and abdomen distended. Incision for gall-bladder, followed by gush of bloody serum. Fat necrosis well marked. Death in twenty-four hours. No sugar in the urine.

CASE II.—ACUTE HEMORRHAGIC PANCREATITIS: Female, thirty-two years of age; intense pain onset; seen by me about eight and a half hours after the onset. Had had three-quarters of a grain of morphia in six hours. Pulse 98, temperature 100°. Shock marked, cyanosis, pain referred to appendix. Primary incision over the appendix, followed by bloody brown fluid. Incision continued upward to pancreas, which was found blue-black and distended; drainage by puncture, etc.; gall-bladder contained no stones; recovered.

CASE III.—HEMORRHAGIC PANCREATITIS; COMPLETE DESTRUCTION OF THE PANCREAS; TWO GALLSTONES IN THE DUCT OF WIRSUNG: Male, forty-four; onset required four grains of morphia in thirty hours. Pain onset intense in back; singultus and vomiting. History of hemophilia and gallstone colic. Previously had slight digestive attacks. I saw him on the eleventh day, with painful epigastric swelling. Upon operating it was taken for a perforating pyloric ulcer, with exudate. Small spot of fat necrosis were taken for pieces of corn, of which he had recently eaten largely. Gall-bladder full of stones. Patient died on or about the eighteenth day, after having had several hemorrhages from the wound.

Autopsy showed complete destruction of the pancreas, with large blood clot in the original site, and two calculi in the duct of Wirsung, these latter proved by analysis to be biliary.

CASE IV.—SUPPURATIVE PANCREATITIS: Male, forty-nine; irregular attacks for years of suspected gallstone colic; onset required three-quarters of a grain of morphia in a few hours. Attack most severe of any he had had. Pain originally in the right side; two days later was in the neighborhood of the spleen. Mass appeared in four days after the onset. I saw him on the tenth day, and advised operation. He finally consented on the twelfth day. Tumor in the left epigastric and hypochondriac space; drained of about one quart of foul smelling pus, with necrotic or fat necrotic areas. Panniculus adiposis in the incision became covered with areas of fat necrosis, etc.; gall-bladder not seen; recovery.

CASE V.—SUPPURATIVE PANCREATITIS: Female, about sixty-four; corpulent; explored by the late Dr. William T. Bull three years before for supposed gall-bladder, etc.; nothing found. Patient recovered, but digestive disturbances continued constantly. Taken ill three weeks before I saw her, with a pain similar to the one for which she was operated upon by Dr. Bull. The tumor presented to the left of the median line on the twelfth day. I saw her on the twenty-first day, with a well-defined, fluctuating tumor, to the left of the median line. Pus evacuated. All evidences in the operation wound of subsequent fat necrosis. Backache always well marked. Nausea and hiccough. Died from exhaustion due to secondary multiple abscesses about eleven weeks after the onset.

CASE VI.—ACUTE HEMORRHAGIC PANCREATITIS: Female, twenty-two years of age, was sent to me on August 13th, 1907, with the following history: On June 13th she was taken with pain. For some time previous to this date she had suffered from "spoiled stomach," etc. On this day she was seized with vomiting and abdominal pain, typical of gallstones, the pain continuing for a few days. She had a number of attacks between June 13th and August 13th, in one of these attacks being markedly jaundiced. Was taken ill on the 12th of August with sharp abdominal pain, intense and back-splitting. Was given immense doses of morphia, with no relief.

When she was brought to the sanitarium the patient presented more or less evidence of shock, rise of temperature and rapid pulse, intense pain in the epigastric region of the abdomen, which extended laterally into the back, and also to the area of the gall-bladder. Diagnosis was made at the time of in all probability acute, hemorrhagic pancreatitis. Request was made to open the abdomen that night, and was refused, but the following morning the conditions were so much worse that the family themselves saw the change, and consented to the opening of the abdomen.

Upon opening the abdomen there was a free gush of beef-broth like fluid, and a few evidences of fat necrosis. The pancreas was rapidly exposed and found to be profoundly hemorrhagic. The edematous infiltrate retroperitoneally extended toward the hepatic flexure and the ascending colon. Palpation of the gall-bladder revealed it filled with numerous small stones, seventy in all being removed by cholecystotomy. The peritoneum over the pancreas was punctured in several places, and a drainage put down to this site. The patient reacted beautifully from the operation. There was free drainage of musty, mucilaginous material for several days. The edges of the wound showed fat necrosis in the panniculus adiposis. She was placed in a semi-sitting posture in about two days, and was dismissed from the hospital at the end of the fourth week, the wound being practically closed. Now, at the end of fifteen months, the patient has had no disturbances, except slight digestive ones. She has gained in weight. Urine analysis at the time of the operation proved negative as to sugar. No Cammidge test was made, on account of the emergency.

None of these cases had at any time showed evidence of sugar in the urine, frequent analysis being made in five of the cases.

In conclusion, I would call attention to some of the pronounced symptoms:

The marked pain at the onset.

The sharp intoxication of some of these cases.

The dyspnea and lividity seen in many.

The constant splitting backache; and finally to emphasize early exploration when a given set of symptoms, such as are presented in this paper, manifest themselves.

60 WEST 52ND STREET.

ELECTRO-THERAPEUTICS IN SOME OF THE DISEASES OF THE GENITO-URINARY TRACT.*

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The various forms of Electro-Therapeutics in the treatment of diseases of the Genito-Urinary Tract, constitute a subject on which comparatively little has been written and not a great deal of good work done, and yet it is a field with enormous possibilities for results, if the reports from the few men who have devoted considerable time and attention to the subject are to be taken as exact. One thing which has retarded the progress of electro-therapeutics, not only in this field but in all branches, is the incredulity of the profession at large towards it, and that is not to be wondered at considering that for so long a time electricity has been a medium through which quacks and charlatans have played upon a suffering public.

As introductory to this subject I need but refer to the diagnostic-therapeutic service in genito-urinary diseases of the endoscope, the cystoscope and the *x*-ray.

The therapeutic use of the *x*-ray in genito-urinary disorders is the same as it is in general work, namely, the treatment of malignant conditions. Epithelioma of the penis has been treated successfully, as also carcinoma of the prostate, and in passing I might say that in using the *x*-ray for superficial lesions, a "medium" tube should be employed and it should be placed comparatively near the subject, say a distance of seven or eight inches from the anode, while for deeper work, such as the treatment of abdominal conditions a "higher" tube at a distance of eighteen or twenty inches is better. In close work the danger of a burn is of course greater, and the case must be carefully watched. Dr. Sinclair Tousey has reported a number of cases of prostatic hypertrophy treated by means of the *x*-ray with good success. I have used it on a few cases with no very marked results. It must also be borne in mind when using the *x*-ray that cases of nephritis are usually aggravated by its use.

Since Apostoli introduced electricity in the treatment of gynecological cases, much has been done by its use in that branch and I suppose might rightly be considered in this paper, but I shall here touch very lightly on that phase of its use. In gynecology the faradic and galvanic currents are both used. The faradic as a rule may be considered as a stimulant, and a promoter of increased vascular action in the parts through which it passes, though in some cases it is a sedative and allays pain. It acts as general tonic, assisting elimination, but it is more mechanical than medicinal. Its use in gynecology is principally in cases of deficient development of uterus or ovaries, amenorrhea, subinvolution and submucous fibroids.

The diseases in which the galvanic current is indicated are hyperplasia uteri, chronic inflammation of the ovaries and tubes, neuralgia, dysmenorrhea, erosions of the cervix, subinvolution and fibroids. I will not go into a description of the mode of use for these different conditions, but will remind you that in using the galvanic current the secret of success is to know, and always bear in mind, the effects produced by the positive and the negative poles. Keep therefore always in mind these facts; that from the positive pole oxygen is liberated, from the negative, hydrogen; the positive is acid, the negative alkaline; the positive will stop bleeding, the negative increases bleeding; the positive is sedative, the negative produces hypersensitiveness; the positive hardens tissue, the negative liquifies and disintegrates; the positive is an acid caustic and the resultant cicatrix is hard and unyielding; the negative is alkaline and the cicatrix is soft and pliable; the positive is vaso-constrictor; the negative is vaso-dilator.

Polarity means everything in the application of the galvanic current, and where the positive pole is indicated the negative will do harm. But there need be no guesswork, if the fundamental physics of polarity is learned and you will neither try to stop hemorrhage or allay pain with the negative pole.

Before considering how galvanism may be used in the treatment of genito-urinary affections, let us determine what is meant by electrolysis and cataphoresis. Electrolysis is the breaking up of a sub-

* Read before the Hospital Graduates Club, Brooklyn, October, 1908.

stance into its elements by electricity, and before this can be done certain conditions are necessary. The substance must be fluid or semi-fluid; it must be a conductor of electricity and one of its constituent elements must be a metal or a salt of a metal. Hydrogen is considered a metal and water being a composition of hydrogen and oxygen it may be supposed that anything containing water fulfils the conditions. When a substance is decomposed by electricity the products of such decompositions are called ions; those which appear at the anode or positive pole are called anions; those at the negative pole kathions. Anions are electro-negative and repelled by the negative pole; kathions are electro-positive, repelled by positive pole, and drawn to the negative, under the law that unlike poles attract, like poles repel.

Cataphoresis is the process of introducing medicine into the body by the aid of electricity, and because a constant current passes from the positive to the negative pole it is not uncommonly supposed that all medication must be placed on the positive pole in order to be forced into the tissues. If we will remember that cataphoresis is an electrolytic process and in every instance the medicine is broken into its elements, and according as they are anions and kathions they seek the different poles, we will get results. For instance, if treating an enlarged prostate with a solution of potassium iodide, the solution must be used on the negative pole if we wish to get the resolvent effects of the iodine, as iodine is electro-negative and has a strong affinity for the positive pole.

Remembering the effects of electrolysis and cataphoresis we may now take up the subject of galvanism as a curative agent. Taking organic stricture first as probably the most common genito-urinary trouble which we see, it is treated as follows: Using an instrument with its insulated shaft and bulbs of various sizes, attach a bulb two or three sizes larger than the caliber of the stricture; this is attached to the negative pole, the positive is placed on the abdomen or back, and the current is turned on gradually, until 5 m.a. is reached. No pressure is required more than to hold the bulb engaged in the stricture. The alkaline action of the negative pole will usually carry the bulb through in about five minutes. Repeat in five days, using a larger bulb.

Strictures can be most successfully treated in this manner and the failures which have been reported are probably in every case due to using the positive instead of the negative pole, or to employing force. The positive would, of course, do harm, as it would produce the very condition it is intended to overcome.

Chancroids are treated by metallic electrolysis. A copper electrode is attached to the positive pole and applied to the lesion, the negative pole is placed on some indifferent place. The current should be strong enough and of sufficient duration to deposit the oxychloride of copper deeply into the tissue. This is ascertained by the green color which the lesion assumes. The stimulating, astringent and antiseptic effect of the copper are thus secured.

When using the positive pole with a metal electrode, and the treatment is finished, it is always well to reverse the current for a moment, otherwise you will have difficulty and give your patient pain. In case the positive pole has become adherent do not reverse the current with both electrodes in place or the subject will receive a sharp and disagreeable shock.

Chronic urethritis and granular urethritis may also be treated by metallic electrolysis in the following manner: Take a hollow sound with its insulated shaft of rubber, and several perforations either through its entire length or only at the end. Through the hollow sound is passed a copper wire wound loosely with cotton thoroughly wet with normal salt solution. Attach this to the positive pole, the negative being placed on the abdomen or perineum. Turn on the current and increase gradually until a strength of 5 to 8 m.a. is reached and maintained for about ten minutes. In this way you obtain the sedative effect of the positive pole, and the local stimulating and astringent effect of the oxychloride of copper.

For soft, bleeding and granular spots in the anterior urethra an endoscopic tube of hard rubber may be used and the electrode passed through that into direct contact with the spot it is desired to treat. The same hollow sound described a moment ago is also used in the treatment of enlarged prostate, the openings being only on the distal end and not through the entire length. But in these cases the solution used would be iodide of potassium about 30 grains to the ounce, and in order to get the alterative effect of the iodine, we make use of the principle of cataphoresis. As I said before, iodine being electro-negative, has a strong affinity for the positive pole; therefore, we attach this time the negative pole to the copper wire, and the positive outside, and the iodine is drawn deeply into the tissues and at the same time we get the softening and disintegrating effect of the negative current. In almost all these old prostatic cases there exists more or less loss of muscular tone. This

may be treated at the same time by leaving the electrode in place; turn on a slowly interrupted current for about five minutes, the massage obtained this way tones up the muscle, improves circulation and consequently assists materially in the absorption of the products of decomposition brought about by the first treatment.

The acual cautery has its uses in genito-urinary surgery, as exemplified in the Bottini operation, which, however, I think is of service in only a few selected cases.

Other genito-urinary disorders which may be treated and benefited by electricity are spermatorrhea, seminal emissions, impotence, incontinence of urine and paralysis of the bladder. The first three are usually seen in young men, and are functional in character and usually associated with neurasthenic symptoms, and in these cases excellent results are obtained in the great majority. No one particular kind of current is used, but as a general thing the best results in these cases are obtained by faradization of the urethra. We all know that in these cases the passage of a sound frequently does good by its mechanical pressure, which tends to unload the capillaries and lessen sensibility; now when that same sound is faradized and we obtain a vibratory action and a slightly sedative one, the good effects are increased.

The static, and high frequency currents are of great value in cases of neurasthenic origin, using the spray, the brush discharge, and the spark. Incontinence is treated by the faradic current, one pole over the symphysis, the other over the perineum.

Paralysis of the bladder, usually dependent upon some incurable condition of the cord, can perhaps be benefited by local and general treatment, but nothing very startling can be accomplished in these cases.

The static and high frequency currents have their use in the neurotic patients and of very great use they are. One other and most important use of the static is the wave current in prostatic hypertrophy; with the patient on the insulated platform reclining on a chair or table, a metal electrode is placed in the rectum in close contact with the prostate, attached to the positive side of the machine; the other side is grounded, and the machine is started at a moderate rate of speed. Draw out one of the discharging rods, until the patient complains of discomfort, which he will do in proportion to the amount of congestion.

In acute congestion the spark gaps can be opened but a short distance without causing pain, but the pain soon subsides. In the subacute conditions, a spark gap of two inches or more can be used. This current, used in this way, forces out of the gland and the vesicles, if the electrode is made to reach the vesicles, secretions and infiltrations, causes tissue contraction, and excites peristaltic action, and will reduce the gland more thoroughly than can be done by digital massage.

These, then, are some of the uses of electricity as applied to genito-urinary disorders. I do not proclaim it as a cure-all by any means, or that it should be used to the exclusion of other methods, but I do say that, used sometimes alone and sometimes in conjunction with other forms of treatment, results will be obtained more quickly and more satisfactorily than if it is not used at all.

132 MONTAGUE STREET.

THE CONSERVATIVE TREATMENT OF TUBERCULOSIS JOINTS.

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In bringing before you for consideration a paper dealing with such an extensive subject as the conservative treatment of tuberculosis joints, I do not wish to be understood as endeavoring to cover the field. No attempt will be made to enter into the etiology, symptoms or pathology of tuberculous bone disease, neither will the treatment of any one joint be taken in detail, but the ground will be covered in a general way by mentioning the principal points in a conservative treatment, and also by bringing to your attention, as examples, some methods used in a few of the larger joints. No claim to original work is made, but only a very brief review of some of the methods made use of in the care of tuberculous joint lesions. It seems to me that a great responsibility rests upon the surgeon when we consider that, if a child is brought to him suffering from this form of arthritis, the result depends upon the accuracy of his judgment, whether a radical operation shall be advised, or whether a conservative plan shall be elected, and upon his decision rest the chances for the patient, who in after years may be wholly dependent for his own support, as well as that of his family, upon the mobility of a joint, the length of a limb, or the ability to sit, stand or walk.

Conservative treatment has been described as that which "consists in so regulating the conditions of the life of the patient and the condition of the affected joint that they are not favorable to the growth and development of disease." Many

patients, even without treatment and left entirely to nature, recover, but usually with considerable deformity. If health is restored under such conditions without aid, cannot we expect to obtain much better results, and that, too, without deformity, if nature is assisted by surgical means scientifically applied? The statement is sometimes made that prolonged rest in a surgical appliance tends to cause permanent ankylosis; but does not the protection and immobility afforded by such an appliance favor a reduction in the activity of the disease, and does it not in this way lessen the likelihood of fibrous or bony ankylosis? And, on the other hand, who can say, after a radical operation has been done, that a sufficient amount of the joint surface has not been so injured as to render it useless, or whether the new bone which has been formed to replace that removed will ever shrink so that joint motion may again approach the normal, or even exist at all? Fibrous adhesions following the manipulations necessary in such an operation are always more extensive and tougher than those caused by disease, while the joint is in an attitude of rest, and after absorption during a considerable length of time has taken place. In radical surgery upon the joints of children we cannot ignore the liability of destruction of the epiphyseal cartilage, which would certainly at once stop the growth of that bone and prevent the development of the limb, which, together with a possible flail joint, would in adult life leave not only a useless, but a troublesome appendage. This treatment is perhaps not so well applied to those past middle life, and dependent wholly upon their work from day to day, for in these cases, since the limb has already fully developed, the time spent in the employment of conservative methods counts more than the post-operative convalescence, and the lost or limited function of the joint as a permanent result.

The fundamental principle of conservative treatment is rest, *i. e.*, physiological rest. Rest in this sense means cessation of all functions; the joint must neither bear weight or strain nor be moved in any direction. To all this must be added protection; that is, a certainty that it shall be free from blows, jars or pressure. A patient may rest more or less comfortably in bed, when tuberculosis of the hip joint is present, but if he sits up even once, he moves the joint, and may do more damage in that one instance than nature can repair in weeks. On the other hand, the patient may be very active and get about constantly, and still, with a suitable apparatus applied, may maintain the joint for all practical purposes in a state of perfect rest. A man with a tuberculous ankle joint may wear a splint upon the extremity which fits to a nicety and which prevents any motion, and yet, if he bears his weight upon that foot, the case may go from bad to worse, and as an end result severe deformity may ensue, or amputation may become necessary.

In the treatment of tuberculous joints rest must be secured by appropriate apparatus which must fit that individual case accurately, and be worn constantly until the disease has entirely subsided, be it one or ten years. If such treatment is consistently followed, the relief will be apparent at once, and the prominent symptoms, such as pain, swelling and cramps, will cease almost immediately. The patient's expression will be more cheerful, he will eat better, sleep better, and, awkward as the appliance may seem to one in good health, he will not complain as much as the ordinary man with a new pair of shoes.

Rest in bed, always combined, however, with fixation and traction, would perhaps be the ideal treatment, if it were possible to supply the requisite amount of sunshine, fresh air and exercise. A portable or wheeling bed which can be placed out of doors may be used for the patient, and thus advantage may be taken of the open air in suitable weather, but this is not always possible, especially among the poor. During confinement in bed for a number of years the matter of bed-sores cannot be altogether ignored, and the appetite and excretions are not always as active as one would wish.

Ambulatory treatment, on the other hand, not only gives the desired rest to the joint, but furthermore it confers upon the patient all the advantages of walking in the open air. This furnishes him plenty of oxygen, sunlight and, last but not least, exercise, which has much to do with good appetite and uninterrupted sleep, all of which seem so essential to recovery. The excretory organs perform their functions much better and constipation is not so likely to ensue. Another thing to be thought of in ambulatory treatment is the mental state of the patient. In connection with such a matter-of-fact affair as tuberculous joint disease this might seem to some to be of slight importance, but it carries considerable weight. The patient has a chance to get about in a great measure as he is accustomed to do. He can go to theaters and other places of amusement; he can visit the stores; he is able to take rides upon the trolley cars and other conveyances; he can journey to the seashore or the country; in fact, he is almost as free as he ever was. The variety thus obtained diverts his mind from his troubles, which seem to him of no small moment in

a disease so chronic as tuberculosis, and his digestive and excretory functions are better controlled by the nervous system.

In the matter of splints, many materials may be made use of, such as wood, tin, steel, leather, celluloid, paper, and many other substances, but to my mind plaster-of-Paris, except in selected cases, can claim for its own more good points than any other one. A plaster-of-Paris dressing, properly padded, applied and trimmed will fit much better, hold the joint in the desired position better, and, on the whole, feel more comfortable to the patient than a splint made of any other inexpensive material. Plaster-of-Paris may be moulded and fitted to suit every whim of the surgeon and advantage can be taken of every bony prominence, which secures for the joint almost perfect rest. Almost any one is able to roll plaster about a limb, but if one expects a cast to fit well, stay in place for any reasonable length of time, and do the work intended for it, he should not leave it to a novice, because its skilful application requires considerable practice.

In the treatment of the shoulder a Velpeau's bandage seems to hold the joint still, and, if this is maintained for a sufficient length of time, a good result may be expected. With the elbow, protection and immobilization are in the majority of cases all that is required, and should the joint be flexed it is as well to put it up in that position and wait until the acute inflammation has subsided before endeavoring to secure a different position. In an affection of the wrist or carpus the same method is used and the splint should extend from the finger tips to the elbow. As far as the hip joint is concerned, it seems to me that the combination plaster spica and brace, with a high shoe and crutches, is the best type of appliance, as it approaches the nearest to perfect rest, and reduces all possibility of deformity to a minimum. Tuberculous knees and ankles should be enveloped in plaster, the former from the groin to the ankle, and the latter from the toes to the knee. The Thomas knee splint, which is worn over the plaster, seems to be the best apparatus for the two last-named joints. This, together with a high shoe and crutches, makes the outfit complete. By the use of these appliances it is impossible for the patient to get the foot to the ground, as the addition of the brace to the plaster prevents him from doing so; therefore, further protection against blows and jars is afforded the joint. Some of the advantages not before mentioned, which may be claimed by those who advocate the use of plaster-of-Paris, are that when it is once applied it seldom will be tampered with by the patient during the surgeon's absence; it will do its work day and night; and it will generally be found in a satisfactory condition when next he calls. Adjustable apparatuses do not assure this security.

Bier's congestion method has been demonstrated to be a very valuable adjunct to the conservative treatment of tuberculous bones and joints. Whitman says that it "was suggested by the observation of Rokitansky that phthisis was uncommon in individuals suffering from disease of the heart when the mechanical obstruction was sufficient to cause venous congestion of the lungs." This form of treatment is applied generally to the extremities, such as the foot, hand, elbow, ankle, wrist and knee. If the knee be taken as an example, passive congestion is produced as follows: A rubber bandage or tourniquet is applied tightly about the thigh, just above the joint, so as to restrict the venous circulation, but not so closely that the pulse may not be felt at the ankle, and thus the veins below the constriction will be gorged with blood. The bandage must be tight enough to considerably impede the venous return, and still not so tight as to shut off the arterial flow. The skin assumes the color of a dark purple, the temperature of the leg is increased, and this, according to Bier, constitutes hot congestion. Cold congestion, which is not advised, takes place when the constricting band shuts off the arterial supply entirely. The foot may be bandaged tightly from the toes to a point just below the knee, when one wishes to confine the area of engorgement to those structures in and about the knee joint only. This procedure should cause no pain and generally very little discomfort, and may be employed for a period varying from a half-hour to three hours daily, according to the symptoms. It may be used in conjunction with splint treatment, in which case the splint should be removed during the period of congestion, and should not be applied again until the blood pressure in the limb is normal. Bier also devised the treatment by active congestion. By this method the hyperemia is produced by the application of heat to the part, and no mechanical interference with the circulation is used. He considers dry hot air to be the best agent at the present time. The heat is usually applied by means of the so-called hot air apparatus, which is sold by all instrument dealers, and gas, electricity, alcohol or gasoline may be employed to furnish the heat.

We will again take the knee joint as an example, and describe its treatment with the specially contrived knee-baker, which is a short oven open at both ends and taking its heat through a flue from

the lamp suspended underneath. To illustrate this method of treatment the process is described as follows: The knee is wrapped with several thicknesses of toweling, and so placed in the baker that the foot projects beyond. The hoods, which are made of cloth and prevent the heat from escaping, are now tied about the limb just above and below the knee and also over the ends of the oven. The heat may be maintained between 300° and 400° for a half or three-quarters of an hour daily, but care must be used to prevent blistering of the skin, as it is possible to burn a patient severely in this manner. The active hyperemia is not used for acute or advancing joint disease, and is less efficacious in tubercular lesions than is the passive congestion, which has a bactericidal action as well as an effect upon the absorption of exudate and other products of the disease.

As in the treatment of other chronic and exhaustive diseases, so in that of tuberculous joints, we must supply a diet which will make up for the drain upon the physical economy. Nature relies upon nutrition and elimination in the cure of such lesions, and in order to secure these, digestion must be good, and the bowels, kidneys and skin must be active. An easily assimilable diet should be pushed to the fullest possible extent.

As before mentioned, fresh air and sunlight are very essential in the care of this class of cases, and systematic open-air treatment should be carried out daily, unless the weather should positively contraindicate it. In this way the body receives oxygen, the appetite increases, the patient secures from the diversion rest of mind, and takes a new lease of life. If it is impossible to get the patient out of doors, he should be placed before a large opened window where the sun streams through, and be allowed to remain there an hour or two. If he is sufficiently wrapped up and kept out of any considerable draught, he will suffer no harm from such a procedure.

There are no specifics in the way of medicine for the cure of tuberculous bone, but iron tonics, the hypophosphites, and cod-liver oil will do no harm and perhaps may do some good.

Of the complications, abscesses at the site of the lesion and metastases furnish perhaps the greater number. In this connection it may be said that some diseased areas may be so walled off by scar tissue as to be innocuous as far as further infection goes. Abscesses, if they do not interfere in any way with treatment, should be left alone, and in very many cases may be absorbed and their contents eliminated through the circulation. If appropriate treatment cannot be satisfactorily carried out when they are present, they should be opened and drained. A tuberculous sinus is often hard to keep clean, and the dressing required is sometimes awkward of application when apparatus has to be worn; therefore, one should not open harmless collections of tuberculous matter without considering the case from all points of view. Tuberculous disease of the lung, intestine, meninges and other parts of the body may come from a bony focus, but affections in these localities may perhaps be said to be without the pale of orthopedic surgery. In cases of chronic suppuration, due to abscess of long discharging sinuses, nephritis, caused by the prolonged elimination of purulent material, may be discovered by frequent examinations of the urine.

An acute case of hip joint disease, if put to bed with a Buck's extension pulling in the direction of deformity, will lose its troublesome symptoms almost at once, so that it would seem that a mistake in diagnosis had been made. The patient, feeling perfectly well and comfortable while thus at rest, will, in a few weeks, often chafe at the restraint and confinement. In addition to the patient's clamors to be allowed to get up, his relatives and friends will argue that it is unnecessary to keep him in bed when he feels so well. Under such conditions it is not often an easy matter to resist the pressure which is brought to bear upon the medical attendant, who, although he seeks to please the patient and his friends, will, if he does so, nevertheless be blamed should anything go wrong from a change in treatment. Therefore, the doctor should put off the day of liberty until all doubt as to the advisability of changes for the patient has passed. It can be truly said that it is better to wear an apparatus or to lie in bed a month too long than to dispense with either a day too soon. While a focus of diseased bone is present, motion, when substituted for rest, will almost always enlarge that focus, and bring a return of the symptoms for which the treatment has been applied.

The laparotomist is very careful before the removal of viscera to obtain the full consent of his patient for such removal; the surgeon uses his best skill in the adjustment and splinting of fractured bone; but even so with the exercise of the utmost care and with the most complete understanding before the operation, we know of many of the most unjust suits for malpractice conceivable. With such warnings at hand and looking to his own safety, to say nothing of what is best for the patient, should not the medical adviser not only give all possible attention to early and correct diagnosis

in tuberculous joint disease, when deformity may mean so much to the patient in after years, but also persist firmly in the maintenance of the treatment which he has established until sufficient length of time has elapsed to effect a cure?

In closing, I would call attention to the fact that all apparatus must be well applied, carefully adjusted and frequently supervised, else results may not be all that can be expected. The conservative treatment of tuberculous joints, although extended over long periods of time, in the final outcome for the patient, and in satisfaction to the surgeon, will by the exercise of care and patience bring its own reward.

REMARKS ON THE OPERATIVE TREATMENT OF SAPHENOUS INSUFFICIENCY.

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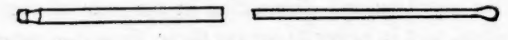
The evolution of the operative treatment of varicose veins due to dilatation and insufficiency of the saphenous, exhibits an interesting progress in simplification of technic. The shortcomings of Trendelenburg's operation[1], gave impetus to the open methods with circular incision (Schede), and to the longitudinal incision, extending the length of the leg, which in turn gave way to the subcutaneous methods of extirpation through ever fewer and smaller openings.

The operation of C. H. Mayo[2] met with general approval and adoption in preference to the extensive lacerations required for the older methods. A year later Kellar[3], of the U. S. Army, described the method of evulsion by inversion classic in its simplicity and ease of performance. Finally Babcock[4], in an excellent résumé of indications for operative interferences with descriptions of various procedures, described an operation which would seem to be the last work in methods of total extirpation of the saphenous system. Instead of interrupting the evulsion at the knee, in suitable cases, he removes, at one sweep, the entire system down to the ankle, by means of a modified bougie-à-boule, twenty-eight inches in length. Though we have not tried the operation, we can readily assent to its feasibility and thoroughness. However, it fails of that feature which appeals to us in the Kellar operation, namely, that the bed from which the vein is removed is untouched by instruments save at the point of entry and exit. This is a theoretical objection, inasmuch as the only possible agent of infection is the enlargement at the end of the bougie; but it is a real one none the less, and it is reasonable to remove where possible even the theoretical possibility of infection along the subcutaneous tunnel left by such operations.

Of course, these extensive evulsions "en bloc" apply only to the simple dilatations. Where varices exist, *i. e.*, windings of the vessel back on itself with sacculations, open dissection is the only resort.

The ease of removal by Kellar's or Babcock's method might provide a useful modification of Trendelenburg's operation, in that a foot of the vein may be removed with almost as little difficulty as an inch, thus avoiding recurrence through dilatation of the collaterals. We recently removed the saphenous system of a man operated upon one year before by ligation and division on both sides, of the saphenous trunk, which measure had been followed by complete restoration of the offending blood column through collateral circulation. There was no tortuosity of the vein nor adhesion of the



Probe, With Groove for Silk Ligature, for Stripping Out Saphenous Vein.

skin. The case was, therefore, an ideal one for avulsion. On one side, owing to inexperience, four incisions were required and considerable fumbling, as the vein was twice torn at the attachment to the probe, and as we failed to cut the posterior femoral branch. On the other side the entire vein, from three inches below the sapheno-femoral junction to four inches above the internal malleolus, was readily removed through three small transverse incisions. It might, as in Babcock's cases, have been done through two, save that this requires an inconvenient length of probe, *i. e.*, about two and one-half feet. The usual ecchymosis appeared along the route of the vein, but otherwise no sequelæ and the symptoms were relieved.

In employing Kellar's method we have adopted a few modifications and will describe them by way of a critical review of the details of the original procedure.

The operation is fundamentally as follows: The vein is cut down on in two places at a convenient distance apart. A probe with an eye is passed through the lumen of the vein and attached by the eye to the cut end of the vein. The probe is now withdrawn in the direction of the unattached end, so that the vein is withdrawn from its bed through its own lumen. It is unnecessary for the assistant to start the inversion with forceps as the attach-

ment of the vein to the surrounding connective tissue affords a natural means to this end.

An objection to a probe with an eye is, that the vein is prone to slip off and draw, not from the probe. but from the ligature threaded through it. A probe with a groove around it, over which a silk ligature is tied makes a firm attachment. (See Figure.) In experimenting on a saphenous trunk after removal, the vein on traction invariably tore through elsewhere than at the ligature, so the attachment was at least as strong as the vein.

In a letter appended to Kellar's article, A. Weeks suggested inserting the probe through the vein from the first incision, as a finder over the end of

which to make the second incision, thus avoiding a search for the vein at the point where the probe is to emerge. The suggestion, however, involved entering at the knee and passing upward with the blood current, an obviously questionable procedure at once avoided by passing from above downward against the current, after the vein has been tied off from the general circulation. The act has this additional advantage that the larger and stronger end of the vein is drawn against the weaker.

We emphasize the advantage of cutting subcutaneously any branches offering sufficient resistance to endanger the continuity of the main trunk. This additional source of infection is, of course, immediately dragged into the disappearing lumen and amounts practically to division of the posterior midfemoral branch only, easily found, as Kellar pointed out, by the puckering of the skin over it on traction.

In cases of long standing, it is usually impossible to remove the vein below the knee by inversion, for there it becomes tortuous and adherent to the skin, calling for dissection. The main trunk of the varicosities over the posterior and peroneal may be removed through a transverse incision about two inches below the first bifurcation.

Moderately firm pressure applied over the stump of the saphenous by a "figure of eight" around the pelvis keeps the stump free from blood until the intima has united and danger of embolus is passed.

(1) R. J. MILLER, JR.: The results of operative treatment of varicose veins of the leg by the methods of Trendelenburg and Schede, *Johns Hopkins Hospital Bulletin*, September, 1906.

(2) C. H. MAYO: Surgical treatment of varicose veins, *St. Paul Medical Journal*, September, 1904.

(3) W. L. KELLAR: A new method of extracting the internal saphenous and similar veins in varicose conditions, *New York Medical Journal*, August 19, 1905.

(4) W. W. BABCOCK: A new operation for extirpation of varicose veins of the leg, *New York Medical Journal*, July 27, 1907.

TREATMENT OF TALIPES EQUINUS VARUS BY PLASTER OF PARIS.*

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That the treatment of congenital talipes equinus varus requires the greatest skill in technic as well as a complete understanding of the principles involved to produce the best results, those with the most experience will testify.

Whitman says: "Although congenital club foot is an eminently curable deformity, yet perfect and permanent cure often requires minute attention to details during the entire stage of treatment, supplemented by long continued and careful supervision after the cure is supposed to be complete. No other deformity presents such a record of failures and incomplete cures, of relapses after apparent cure, of tedious and ineffective treatment by braces, after many years, and of unnecessary and mutilating operations. A few are due to unusual obstacles in the deformity itself, but by far the greater number must be accounted for by the failure of the physician to apprehend the true nature of the deformity, or by his inexperience in the practical details of the treatment."

Bradford and Lovett say: "The literature of

* Read before the Academy of Medicine (Section on Orthopedic Surgery), December 18, 1908.

club foot is too often that of unvarying success. It is sometimes as brilliant as an advertising sheet, yet in practice there is no lack of half cured or relapsed cases, sufficient evidence that methods of cure are not universally understood."

To thoroughly understand and work out the best treatment for the correction of any deformity one must know:

1. The anatomical structures and mechanical principles that enter into each deformity.
2. The technic of the operations for its correction.
3. How to prevent its recurrence.
4. How to restore the functions of the part.

The anatomy of talipes equinus varus comprises both the foot and the leg. The foot as a whole, beginning with the slightest deformity is simply adducted, supinated and plantar flexed with shortening of ligaments and tendons holding the foot more or less permanently in this position. As the deformity becomes more severe the tarsal bones become slightly twisted and curved and partly dislocated to allow the foot to assume the more deformed position.

In detail, the astragalus begins to twist in its neck at the same time if the force is great enough through its articulation and ligamentous structure, the tibia is twisted on its long axis, principally on its lower third, and the whole leg is turned inward. The force continuing, the articular surface of the astragalus becomes partly dislocated, the calcaneus is twisted, the scaphoid slipping as far as the internal malleolus. The cuboid, cuneiform and anterior part of the foot following in the general direction. Their articular surfaces all rotating to the inside, the ligaments and fascia contracting in their new relations.

We know that mechanically the easiest way to restore the foot to its normal anatomical condition is to restore the slips that the foot must have once occupied, the muscles being more thoroughly stretched in this manner and the bones more likely to be completely reduced to their normal position.

Why the varus should be fully overcorrected before the equinus is disturbed, is because in the first place we have a long rigid arm of a lever to the medio-tarsal joint and can apply the power to a great advantage, but once let the tendo-achilles and contiguous ligaments be cut or stretched and our long arm becomes very short and insecure, necessitating the calcaneus being held rigidly with our hand while we correct the varus, a practical impossibility in a severe case, where before we had the tendon and ligaments to do the work for us.

Having brought the foot on line with the long axis of the leg, we should expect to find the plantar fascia, the ligaments on the inner side of the foot stretched and torn, the tendons somewhat lengthened, but the facets and dislocations altered only to a slight degree as the sum of the motions between these articulations is considerable and all the slack must be taken off before any reduction takes place. These assumptions are found to be verified in practice.

Now to reduce these partial dislocations and to make new facets more to the outside even than normal, as well as to further stretch the tendons and ligaments we must overcorrect as far as possible by abduction and inversion, being extremely careful not to disturb, in the slightest degree, the equinus or to evert the front part of the foot too soon. In this overcorrection we carry the outside edge of the foot against the external surface of the leg. If the rectification has been properly done to this point the equinus still remains and often some plantar flexion. The foot should now be slightly everted and abducted and gradually flexed upon the leg. By this procedure we will be able to stretch the tendo-achilles and reduce the forward dislocation of the trochlear surface of the astragalus. In very obstinate cases the head will either not be fully reduced or the tibia will be crowded against the front of the astragalus, preventing flexion. They can always be recognized by the marked resistance in this direction. In correcting the equinus great care should be taken not to flex the foot too much at the medio-tarsal joint or we will get a foot rounded upon the bottom and functionally poor, the equinus never being fully corrected. This can be avoided as far as possible by applying the power near the medio-tarsal joint.

The degree of deformity should be recognized at the beginning not only for an accurate prognosis but for the extent and severity of the treatment. These varieties range from slight cases with the foot comparatively long, narrow and non-resistant, that can be cured without any special hurry or pain to the child, to these that are very short and broad and plantar flexed with great dislocation of the bone and facets correspondingly out of place that tax all the powers of one's ingenuity to get good results.

In the severer cases there is often a dry crease at the inner side of the foot, sometimes at the back of the heel, always holding that part of the foot more firmly.

There is another severe variety in which the foot and leg are very fat, necessitating special de-

vices to keep the plaster from continually slipping. This is a class of cases in which the skin at the inner side of the foot is more contracted than usual, turning with a very little force, the progress being necessarily much slower. As a general rule it can always be said, the more the varus and plantar flexion, the severer the case.

TECHNIC OF THE OPERATION.

It is impossible to give any definite limit as to when a child is too old to be treated by stretching and plaster of Paris. One child at two months may be more resistant than another at two years, each case being judged by the force necessary to overcome the deformity. I have shown a severe case that had practically no treatment until nearly five years old and yet attained perfect anatomical correction by this method. I have another at four and one at two years of age when first treated, all being resistant deformities.

All club feet, I believe, should be shown to the surgeon at one week of age, since the size and resistance increases very rapidly in a well nourished child. often doubling in the first four weeks. Overcorrection can thus be accomplished with half the force if we begin early. Slight cases can be postponed until a month old, instructing some one in the meantime to stretch them daily.

Whether an anesthetic should be used also depends upon the force necessary to correct. The anesthetic relaxes the muscles and one is not deterred by the apparent suffering of the patient. Two or three times as much can be accomplished in a very resistant case by its use at each treatment. Before the plaster is applied each time, the foot should be thoroughly stretched, bathed with alcohol and powdered. The stretching is done so that more rectification can be done at each sitting, it being very hard to properly apply the plaster bandage and use much force on the correction at the same time; besides, if much force is used at the application of the plaster, the pressure on the inside of the foot will be sufficient to cause a restriction of the circulation with a resultant excoriation. In stretching the right foot, the left hand grasps the anterior part from the inside. The right hand supports the calcaneus and ankle joint. The foot is bent at the medio-tarsal joint over the little finger of the right hand. This procedure will reinforce the tendo-achilles and get the maximum amount of force where it is most needed to correct the varus. If the right hand grasps the leg above the ankle joint, in many cases the foot will pivot about the tendo-achilles without correcting the varus sufficiently and is of all things what we wish most to avoid. Press always as much as possible on the plane of the bottom of the foot, especially in the first part of the treatment, since obviously you can more easily correct the varus in this manner as the power is all applied in one plane, and the whole bottom of the foot is kept in proper relation to the parts.

How much the position of the foot should be improved each time, depends upon the resistance of the case, the amount of laceration of the internal structures, how far the skin will stretch without tearing and to what extent the circulation will adapt itself to the changed position. The only general rule that can be laid down is to be sure you have made substantial progress each time. If you do not see much change in the position of the foot after the plaster is applied, do not leave it with the expectation of better results next time, for more resistance is met at each treatment.

After the foot has been stretched, bathed and powdered, small pieces of cotton are put between the toes, and a larger one on the inside of the foot. A 1½-inch canton flannel bandage is used and applied in the direction of a right handed screw to the right foot and a left handed one to the left foot. Thus, the bandage itself tends to correct the deformity. It should extend from the tip of the toes to the knee joint. The reason why the foot and the leg should not be encased in cotton as is often advised, is that you cannot get as good a position when you are applying the plaster of Paris on account of lack of adhesiveness between the cotton because you are apt to lose sight of the exact position of the foot; it is more liable to slip and the foot cannot be moulded as well while the plaster is hardening.

When applying the plaster keep the foot as much corrected as possible and make the turns over the same deviations as the bandage. Here of all places have each layer smooth. Use a two-inch plaster bandage and put on only about four thicknesses. Iron it out well over the outside of the ankle, not only to remove any irregularities of surface, but to improve the position.

The thinness of the bandage will allow considerable amount of moulding of the foot while setting, and is not as severe on the foot, often giving away just enough if there is too much pressure.

Even in older children much more correction can be accomplished by this method and after sitting, as many additional bandages can be applied as are necessary.

The number of plasters needed to fully correct the deformity depends upon the age and severity of the case. In one of a moderate degree four or five are sufficient, while one very resistant might require twenty.

It is important to remember that if you do not get considerable improvement each time, chloroform should be given and a thorough and forcible stretching done.

My experience has impressed me most forcibly that the correction must be hurried, a plaster continually getting loose after a few days, left off on account of a slight excoriation or perhaps a little eczema will soon get a foot in condition where it cannot be corrected without some cutting operation.

Plaster applied without cotton and well moulded will seldom slip, but if it should show a tendency to do so, two adhesive straps along the leg, the last inch being incorporated in the plaster, will prevent it. This device should not be neglected, for a foot that continually slips will become gradually worse instead of better. Each plaster should be changed in from one to three weeks. The older the child and the more severe the stretching the longer they should remain on to allow the swelling to subside as the foot stiffens up greatly while this is present, and very little can be accomplished.

How much pain should the child suffer? If the case is only moderately resistant the patient can be treated almost without pain, but in severe cases they will often cry more or less the first two nights. If longer than that, there is too much pressure. Mothers do not mind the suffering of the child as much as one would suppose and seem to fall in readily with the suggestion that the more the baby cries the more good it is doing him, often saying of another physician with great disgust, "Why he never even made the baby cry." They seem to think if they are not getting hurt there is not much being done, which,in many cases is true. For that reason it is often better to start in vigorously at first, not only for the baby's ultimate good, but it saves trouble if you have to begin later.

In some cases where ideal results have not been obtained either from the fault of the operator or unusual difficulties of the deformity, special devices can be used to advantage.

A board incorporated in the plaster at the bottom of the foot, applied with as much force as the circulation will tolerate, will do a great deal to flatten out a rounded sole.

In resistant cases of two or more years an oval piece cut out of the plaster at the instep, leaving only a narrow strip intact at the heel, will allow more correction every two or three days without removing the plaster, thus insuring rapid progress.

As the age of the child increases the circulation is more disturbed by the correction force, and after the plaster is thickly applied, a cut can be made along the whole outer border of the foot from the little toe to the leg without losing any of the correction and any constriction can be easily relieved.

How to prevent the recurrence of the deformity? This is, I believe, the most important part of my subject and nearly all of my cases shown are to illustrate this point.

1. Practically all cases, if competently treated in early infancy, can be fully overcorrected.

2. Every case of any severity, no matter how well corrected in early infancy, will tend to relapse.

3. Every observer has noted, the older the child the less liability of recurrence.

From these three statements we can draw the perfectly logical conclusion: That if we fully correct a foot in infancy and keep it corrected long enough, there will be no practical liability of its recurrence.

This being true, the answer to our question, How to prevent recurrence? revolves about the point, how long shall we keep up our correction, and incidentally, what is the best way?

Of course, a foot can be corrected, and then held in a brace a number of years, until there is no tendency to recur. The disadvantage of such treatment is that you have no margin of safety and must struggle against a relapse, at the very edge, as it were, of a recurrence. While if children can begin in infancy and go from one to three years before the first stage of recurrence manifests itself, and then receive stretching and plaster of Paris until again overcorrected, and so on until there is no further tendency to relapse, it seems to me such treatment is much to be preferred, since the length of active treatment by apparatus is less, other things being equal, the leg should functionate and develop more rapidly.

I have carried out a treatment embracing these ideas at the Hospital for Ruptured and Crippled for the last seven years. In detail it is this: Fully overcorrect the foot as soon as possible, hold it in the corrected position, when it gives very little pain or discomfort to the child, from 2 to 6 months, depending upon the age and severity of the case. It can then be left free, the parents stretching it a number of times daily, returning to the physician every two weeks. The moment that overcorrection

requires any force it should have a plaster for two weeks, then again left free, the intervals between treatment growing longer and longer, until once a year will be sufficient. After the first period of correction there need be little pain or trouble, if the physician did not wait until decided retraction had taken place.

In regard to overcorrection, some seem to think I overdo it. The best answer I can give is that of over 150 cases I have personally treated, overcorrecting them all to the greatest degree, I can say I have not seen one I do not wish more overcorrected than I find it at the present time.

How to restore the function of the foot? To restore the functions of the weakened muscles they must be allowed to contract as much as possible, which can best be done by taking all strain from them. Overcorrection will best accomplish this and in quickest time possible, nor should the weakened muscles be allowed to lose what they have gained by having any great tension against them. Voluntarily exercise of these muscles should be taught as soon as the child is old enough to understand.

In conclusion, I would say I believe we should tell all mothers at the beginning that all cases will relapse even if apparently cured if they are not treated from time to time until the child is nearly ten years old; that relapsed cases are harder to cure than at the beginning; that stretching and application of plaster will have to be done when the occasion arises until there is no further need.

If this is fully impressed upon the mother and physician the extended treatment will be of further interest as well as satisfaction to all concerned.

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A METHOD OF ENUCLEATING THE APPENDIX.

In cases operated upon for appendicitis, when it is found that no meso-appendix exists, the simplest method of enucleation is as follows: Make a circular incision through the serous coat near the base, and then introduce an ordinary blunt-pointed hook, the lower end of which has been bent at a right angle, and encircle the stump in a similar manner to that in which an aneurysm needle embraces a vessel, make a gentle movement downwards in the direction of the appendix, and usually in a few seconds the enucleation is complete. The stump is then treated in the usual manner, and as there are no vessels to tie, the whole operation is completed in a comparatively short period.— L. HERSCHEL HARRIS, in the *British Medical Journal.*

PRACTICAL DEDUCTIONS REGARDING WEAK FOOT.*

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Numerous treatises have been written concerning this very common deformity. All point more or less to the same goal; that is the possibility of chre with the exercise of special care, scientific treatment and restitution of ideal conditions. No one can deny that the treatments thus expounded show marked difference of opinion, and are in their variety and number very confusing. It is, therefore, hardly surprising that from this jumble of ideas the busy physician will turn with relief to a concise, attractive pamphlet sent him by some shoe firm which glowingly describes the advantages of their particular arch spring or prop. The application of the same is simple; its use brings relief to the sufferers, although frequently only temporary and condemning him to continuous brace wearing. But how many people care about anatomical cure, so long as they can have immediate relief, unless the probability of recurrence in more severe measure is explained to them. Again in following these many essays it appears that much energy has been applied to correction of existing deformity, and little to its prevention. Careful examination is made in the schools of children's eyes, throat and back, at the same time the feet are neglected. It is highly probable that weak foot can have its start in childhood, pass unrecognized and without symptoms on until adolescence, and then through some cause appear as an apparently primary deformity. Grown up countrymen whom the writer has frequent occasion to observe, although exposed to the same or increased amount of weight bearing and foot strain in their various occupations and condemned to the use of as mis-shapen shoes as ours, are comparatively free from painful foot affections. Their child-life was an untrammeled bare-footed one, the muscles and soft yielding bones developing as nature required. So long, therefore, as our children from the earliest days of walking are by environment forced to wear shoes, it should be a duty to see that they are correctly shaped and well fitted.

Weak foot is caused in many different ways: concisely speaking, anything from within or without, above or below that tends to distort the normal

* Read before the Section on Orthopedic Surgery, Dec. 18, 1903.

alignment of the active foot structure is to be thus considered. Frequently the causative factor is of greatest concern, as its evil effect must first be eliminated before local, reconstructive treatment can avail. The patient's history carefully taken and considered and thorough examination of the exposed feet and legs in the stages of rest, passive weight bearing and active propulsion, as well as in regard to limitation of active normal range of motion and resistance or freedom to passive manipulation, are our safest guides in deciding upon the treatment to be employed.

The remedial measures at our disposal may be for convenience outlined as follows:

1. Supportive: corrective.

Such as, *Shoes* of proper shape and size, more or less built up along the inner border.

Adhesive plaster strapping: so applied as to hold and support the foot in correct position while walking.

Braces: Of which the writer has found the Whitman brace the most efficient and satisfactory.

PLASTER-OF-PARIS RETENTION.

2. Passive and Active: corrective.

Twisting: according to the degree of spasm and pain either undertaken with or without an anesthetic.

Exercises: preferably done daily by the patient, following careful administration.

Mechano-therapy, an active corrective procedure undertaken in some pendulum apparatus.

3. Adjuncts to Treatment:

Massage,

Hot foot baths: preferably in water to which some sea-salt was added.

Bier congestion: In very spastic flat foot, with inflammation, I have included the compression method with active and supportive treatment. Its effect in decreasing pain has appeared very satisfactory in several cases.

In flat foot we meet the severe type of foot deformity. The time of prevention is passed, supportive measures useless on account of the unyielding nature of the condition; correction is indicated, either immediate or gradual. By immediate correction is meant reduction of deformity under anesthesia, and in over correction plaster of Paris splinting. After several weeks, in which the encased foot is well used, the dressing is removed and the usual active and supportive treatment begun. Gradual correction is undertaken in the pendulum apparatus, its use is painless, its corrective action increased with the progress of the case. Besides bettering the deformity and lessening the spasm the systematic use of the apparatus markedly increases the strength of the muscles of the foot and leg. The forcible reduction under anesthesia with fixation in the over corrected position would be ideal were it not for the physical and mental anguish of those afflicted. Many a person will refuse the procedure and suffer on, whereas they would gladly have submitted to the necessarily slower method of correction in some efficient pendulum apparatus, with an ultimately equally good result.

Weak foot is essentially a condition of disordered normal function due to structural weakness. The height of the arch is of secondary importance so long as correct functional use is accomplished and any dislocation in the relationship of the tarsal bones is prevented.

In combatting the cause as well as effect will the treatment be successful. Thus the occurrence of a symptomatic or actual shortening of the tendo-achilles must be kept in mind and overcome, the possibility of an old forgotten metatarsal or tarsal fracture eliminated by means of the x-ray in a refractory case; and the aggravation of local symptoms by a possibly unnoticed general disorder understood.

In overcoming spastic weak foot, too much routine of treatment is an error. Undoubtedly this condition attracts, in a pair of powerful hands, a strong desire to twist, but in considering the general mental and physical condition, as well as the local deformity and resistance, and manipulating accordingly, the results obtained will be just as good and much more satisfactory to your patient. Adhesive plaster strapping retaining the corrected attitude of the foot in the act of walking between treatments, is indicated until all spasm has been overcome, but it should be changed frequently, at least once a week, otherwise the skin becomes very irritated and the dressing useless from overstretching. Poor local circulation being one of the usual complications of spastic weak foot, additional continuous congestion through too generous an application of adhesive plaster appears rather harmful than otherwise; encircling the entire foot, and ankle with a figure of eight dressing, tightly applied, is therefore hardly commendable.

In respect to brace treatment, a thorough knowledge of the anatomy of the foot must underlie the shaping of a proper plate. The large variation in the shape of normal feet, the many differences in the height of normal arches and the complexity of the muscular distribution must contra-indicate the

careless permitted trimming of the cast by the brace maker. The brace should never be applied while spasm and limitation of motion persist; marked thickening of the skin resembling bunion over the astragalo-scaphoid articulation following its use is probably due to overlooking this fact. Brace treatment has one shortcoming in that the patient thinks, that with the disappearance of pain and application of the support, matters will henceforth shape themselves and carelessly breaks all rules governing future occasional inspection and further active home exercises.

Advice in regard to these should be thorough and governed by the general physical condition as well as the local affection. One cannot, for instance, expect a person afflicted with arterio-sclerosis to jump up on the turn in toes, nor an infirm heart to dance or ride a bicycle.

Open, operative intervention is only indicated when paralysis of certain muscles prevents active resumption of the normal attitude, or where primary deformity (fracture; tuberculous disease) makes correction impossible. Weakening an already poor structure by removal of one of its component parts although at first apparently helpful, can only be passing benefit.

The prognosis is dependent upon the severity and time of existence of the foot affection, upon the correct interpretation of the condition in regard to the curative measures to be employed, and their future, systematic and consistent execution.

129 WEST 118TH STREET.

METASTATIC CARCINOMA OF THE RECTUM.

In certain forms of carcinoma of the abdominal organs, notably gastric carcinoma, and in some cases of tubercular peritonitis, implantation metastases in Douglas' pouch are common. These metastases impinge upon the rectum and may infiltrate its submucosa, causing a peculiar shelf-like tumor on the anterior rectal wall, readily felt by the examining finger. In cases of gastric carcinoma this may be an early metastasis, and occurs especially in males. In such cases the primory tumor may be latent and the metastasis may be large enough to cause symptoms of obstruction. It has been mistaken at times for rectal carcinoma and has been removed as such. The not infrequent occurrence of this rectal shelf makes it a diagnostic and prognostic sign of a good deal of importance, and warrants the statement that in no case of obscure abdominal disease should a rectal examination be omitted.—GEORGE BLUMER in *the Albany Medical Annals.*

THE VERSATILE OMENTUM.*

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The importance of the functions of the omentum in surgical practice is too frequently overlooked. We have been accustomed to regard it as an apron with two outer layers of peritoneal membrane between which were numerous glands, some fat, and a rich supply of bloodvessels. It is supposed to act as a great protector of abdominal viscera against injuries, heat and cold, and to equalize blood pressure through its immense venous reservoirs. We know that it is a source of annoyance to the operator through its persistence in trying constantly to attach itself to any wound in the abdominal wall, and that it frequently eludes the surgeon's vigilance, and becomes entangled in the peritoneal sutures, thus adding to the number of post-operative adhesions.

The path of the lymph stream from the abdominal cavity is largely by the omentum. Lodi states that the omentum plays an important part in the absorption of both microorganisms and solid particles in the peritoneal cavity. Durham found in an animal killed twenty minutes after an intraperitoneal injection of bacteria that the omentum contained bacteria, while the peritoneal cavity was sterile on culture.

When the omentum is irritated by any cause, there is a transudation onto its surface of an exudate, composed of white blood cells and fibrin, which produces a stickiness that enables the omentum to become attached to or encapsulate the offending part. If pathological germs are too numerous or virulent, then permanent adhesions are formed or local abscesses may result. It is believed that the staphylococcus albus appears first after an injury, and by its rapid dissemination and minor irritation induces the rapid transudation of phagocytes from the omentum sufficient to overcome the more virulent germs which appear later. The busy omentum seemingly possesses curiosity and may be found investing any inflamed organ or denuded gut. Its sticky quality makes it very competent to adhere to intestines which have been wiped or handled by dry gauze. On making an abdominal section, the rigid or adherent omentum points without failure to the pathological center, and it is time saved to immediately recognize the reliability of such a guide. The knowledge of the ability of the omentum to resist the germs of infection should

* Read before the Western Surgical and Gynecological Association, December, 1908.

not make the operator careless in separating omental adhesions, since they too often simply form a lid or covering for immense pus vaults, filled to bursting, even though walled off from the general peritoneal cavity.

The experiments of Emanuel J. Senn, in 1903, with dogs, show that the omental membrane of these animals is not competent to combat infection or leakage from intestines as it is in human beings. Though the omentum in dogs is of greater area in proportion, it is much thinner, and less richly furnished with glands than is the human apron. It is known that in human or other animal, the omentum is capable of taking up one-half of one per cent. of the body weight of fluids per hour, partly by blood stream and partly by lymphatics. This quality makes the omentum a valuable substitute for the drainage tube. The absorption of intraperitoneal fluid is proportionate to the activity of intestinal peristalsis. Reduction in temperature of the peritoneal cavity diminishes the absorptive power of the omentum, thus contraindicating the use of the ice pack over the general abdominal cavity during the early stages of pus formation. Rogers demonstrated the protective rôle of the omentum in guinea-pigs, two months after he had removed the omentum, by injecting a virulent culture of staphylococcus aureus, with death in twenty-four hours, while controls of the same weight with simple laparotomy received the same culture and survived. Experiments by de Renzi and Pirrone show that the circulation of the spleen may be cut off or tied off and the omentum will envelop and absorb the spleen, while if the protecting action of the omentum be prevented, the experiment results in death to the animal. Other findings show functional relations between spleen and omentum.

It is my habit to use the omentum as a patch for wounded intestine and denuded peritoneum or to fill in ulcerations which are not readily or safely closed. When large pus cavities are opened, after removing the pus and wiping contaminated parts with iodoform gauze, the omentum is in all cases, where possible, made to adhere to the infected part instead of using a drainage tube.

In every case where my operations are complicated by suppurating areas or penetrating intestinal wounds, leaking ureter or obstruction of the bowels, the part infected is enveloped as far as possible by the omentum. I often cleanse the pus cavities with peroxide of hydrogen or leave a light sponging from iodoform to inhibit the pathological germs until the omentum has time to marshal its reparative forces. In post-cecal appendicular abscesses, with free flowing serum, I insert drainage posteriorly for one or two days. The question of drainage is often solved for me by the condition of the omentum. If the omentum is large, thick and free, and easily plastered to the infected area, I do not drain. If thin, short, curled up, or already much damaged, I drain from the most dependent part of the infected area, and when possible keep the outer end of the tube the lower. To me the omentum seems an entity. It apparently searches for opportunities to render first aid. This very virtue contains its element of danger. Too often the adhesions formed through its protective efforts are permanent, and may restrict free peristalsis, and even cause obstruction of the bowels. The reverse is true when the good offices of the omentum are used by inserting it between divided adhesions formerly connecting loops of intestine. In these cases, as resolution progresses, the adhesions disappear.

In progressive tubercular or malignant disease of abdominal organs, when the utility of omentum is finally overcome, ascites appears and warns the surgeon of damage to his most efficient aid. It is then that celiotomy should be done in the less serious affections and competent and complete drainage of the free fluid effected. The omentum should be liberated or unrolled, teased down in the abdomen as far as possible, until its function of absorption is restored. If firm adhesions about the ovaries, I often sever the omentum close to the enveloped organ, leaving the distal portion to assume the functions of the local peritoneum, and when the omentum is not long enough to reach freely into Douglas' cul-de-sac, a patch may be severed and transplanted like a skin graft.

Illustrating types of condition in which these functions were most beneficial, I have selected three cases from hundreds in which I have utilized this most important organ.

CASE I. Operated upon April 15, 1904, for the removal of a uterine fibroid, complicated with a long-existing pus tube, the vitiated bowel wall gave way, tearing completely across the sigmoid juncture with the rectum. There was so much loss of the structure of the intestinal wall, due to the degeneration from contaminating pyosalpinx, that an attempt to suture the gut proved fruitless. There was no peritoneal membrane left on the wall, and the muscular coat would not hold a suture. A Murphy button was introduced and held the approximated ends, while an envelope was made of omentun extending over two inches along the bowel and sutured around the anastomosis. A colostomy

was done in the left inguinal region and fecal evacuations followed through the artificial anus. Three weeks later feces were expelled by rectum, but the button was retained and explorations from above and below showed all the normal coats of the bowel had separated and the sleeve of the omentum made a pouch detaining the button. This was finally removed by the use of long forceps introduced through the artificial anus. The colon was then detached from the abdominal wall and the wound in each closed. This patient could not be said to have an uneventful recovery, since on October 18, 1904, I made a trip to Milwaukee, and with Dr. Fitzgibbon, operated upon her in Trinity Hospital for appendicitis. Again, in February, 1905, I drained Douglas' pouch for a purulent accumulation. On December 13, 1907, I operated upon the right kidney for calculi, complicated by nephritic abscess. The patient at this writing appears to be in normal health. She perfectly understands the pouchy condition of the bowel and watches closely the consistency of her dejections, constantly keeping them semi-solid.

CASE II.—Dr. S., 64 years of age, six feet tall, weight 250 pounds; teetotaler and of perfect habits; active in practice; was a sufferer for years from hepatic colic. Following a severe attack, his temperature was above 105° F., several days. The doctor entered the Swedish Hospital with a diagnosis of empyema of the gall-bladder and biliary calculi. Operation the following day. The gall-bladder was adherent to the posterior abdominal wall, and was reached with the greatest difficulty. After walling the abdominal tissues with gauze, the gall-bladder was aspirated of a large amount of bloody, feculent pus, after which many angular gall-stones were removed. The patient's condition was such that I did not attempt to remove the gall-bladder or even free it from its adhesions, but instead fastened a rubber tube, one-third of an inch in diameter, into it, and completely enveloped the tube with the omentum up to the anterior mural peritoneum. The rubber tube came away on the tenth day, but the fistula made by the omentum remained patent five weeks, and has since reopened several times. The point is, the ability of the omentum to make a biliary duct from posterior to anterior wall perfectly protecting the general peritoneal cavity against a virulent infection then existing in the gall-bladder.

CASE III.—Miss L. T. entered the hospital, August 26, 1908, with an attack of appendicitis. She had a history of having swallowed a pin and a needle some weeks previous. The pin had been found in the stool three weeks after being swallowed, and the parents supposed the needle had also been expelled with the feces. During the operation for removal of the appendix, I noticed a bunch of the omentum. Obeying my rule to follow the index of the omentum, I found the needle, which had escaped entirely from the intestinal tract, and was enveloped in the omentum.

In conclusion, I may be allowed to say:

1. That it seems sensible to follow natural and physiological efforts in our attempts to cure.

2. That the functions of the omentum to combat infection and drain dangerous elements from peritoneal cavity are well-established.

3. That we should aim to secure the assistance or such functions, and at the same time use our ingenuity to prevent permanent adhesions that might be harmful.

4. That we should deprecate the wasteful amputation of parts of the omentum appearing redundant or occupying the hernial sac.

5. That damaged, over-affected or strangulated portions of the omentum should be removed, in order that greater utility may be possible from the portion remaining.

CONGENITAL SACRAL TUMOR WITH REPORT OF CASE.

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Congenital sacral tumors belong to the group of teratomata. They may or may not be associated with meningocele. Their mode of origin is still under discussion. One school claims that they are the result of misplacement of germinal fragments, while others contend that it is of bigerminal origin, *i. e.*, that such a tumor represents an incomplete monstrosity or twin.

The data obtained from both the gross and microscopic examination of these tumors gives evidence in support of either of these claims. Those who believe in the monogerminal origin hold that cell inclusions occur when the dorsal surface of the early embryonic mass folds itself to form what in the future is to be the spinal canal. The fact that the skin attaches itself very early in the sacrum, and may thus become inclosed below the cutaneous surface, is thought to be a strong reason for the occurrence of these dermoidlike tumors.

On the other hand, the finding in these tumors of such formations as a complete limb, portions of a skull, eyes, trachea, etc., is argued by the bigerminal advocates as proof that the existent fetus had in its early career included the products of another fecundated ovum.

However it be, these growths are cystic, have a fibrous basic structure, and contain various secretions, chiefly the fatty, grumous material so characteristic of dermoids. Because they sometimes contain neuroglia and ganglionic cells, they have also been called *neuroepitheliomata*. In size they may vary from a pea to that of a child's head.

They are usually situated in the mid-dorsal line of the sacrum (which bone may at times be reduced to a mere shell of horseshoe shape) at its junction with the coccyx. If the tumor be at all large the coccyx is absent.

Sometimes these tumors are situated in front of the sacrum or coccyx, and then give symptoms of intrapelvic pressure. Cases are on record where the latter growths have discharged their contents into the rectum. Steinthal quotes Kroner and Marchand (v. Bergmann, System of the Practice of Surgery) in a very interesting report of a girl, 20 years of age, who had an anterior sacral meningocele, closely resembling a cyst of the broad ligament. This tumor was first aspirated, then opened and drained; death followed with symptoms indicating meningitis.

Of considerable interest are those cases where a congenital fistula has existed in the sacral region, proving refractory to the ordinary surgical methods, but upon radical operation found to communicate with a teratoma, either in the sacrum itself or in the presacral tissues. In one such an instance, recently reported by Keen and Coplin, the *x*-ray demonstrated the presence of extra segments of lumbar vertebra besides fetal parts of the original teratoma. From the data of their case the existence of a triple monstrosity may well be assumed.

Though classed among the benign growths, sacral teratomata possess an element of danger which wellnigh borders on malignancy. Their proximity and perhaps communication with the meninges might bring about severe complications should the tumor by reason of its low vitality become in any way infected. And these tumors *do* sometimes ulcerate; when that occurs, and infection follows, the latter is most difficult to arrest.

From a prognostic standpoint it is of the utmost importance to know whether or not the growth communicates with the meninges. If it does the prognosis is correspondingly unfavorable.

CASE.—Baby S. Kindly referred to me for operation by Dr. J. F. Simpson. Age 3 months. Presents a tumor the size of her own head, attached by a broad pedicle to the left of the median line in the sacral region, extending from the spine of the first sacral segment to and below the coccygeal region (Fig. 1). The tumor is rather tense, of cystic "feel." The skin over it is thickened and presents a few minor cysts varying from a split pea to a small plum in size. While fluctuation can be obtained, it is not communicated to the fontanelles. There is no paralysis and the child appears bright and well nourished.

There is no analogy to this case in the families of either the father or mother. A few facts in the history of the mother may be of interest in connection with the existent abnormality. She was 28 years old at the birth of this child, it being her first pregnancy. She had never been seriously ill before, except that at the age of 17 she injured herself by falling from a step-ladder, due to a sudden faint feeling. Thereafter she was confined to the house for six months, for even upon moderate exertion syncope would follow. This state gradually wore away. She was married 20 months before she missed her first menstrual period. At the end of the third month of pregnancy, she thought she would have a miscarriage. Had vaginal bleeding, lasting about four hours, during which time nearly a pint of blood was lost. A month and a half later she fell twice and both times struck at the end of her spine, to which impression she attributes the deformity on the back of her child. In the seventh month of pregnancy, she fell from a distance of about four feet, striking quite heavily on her right hip.

With the exception of these mishaps her puerperium was normal and so was labor. The mother

Fig. 1. Showing Sacral Tumor Before Operation.

did not see the growth on the child's back until two weeks after her confinement, and at that time it was the size of a large orange and so transparent that "you could fairly look through it."

Operation was performed four and one-half months after birth. This consisted in a curved incision made on either side of the base of the tumor with the idea of securing sufficient flap to cover in the remaining raw surface after the tumor's extirpation. In reflecting back the flaps the interior of the tumor was penetrated and found to consist of a group of multilocular cysts containing thick sebaceous material. After removing the tumor it was found that there was a defect in the coccyx through which the wall of the rectum could be seen to bulge when the child attempted to cry. (Allowed to come out of surgical anesthesia for necessary reasons.) The defect was closed over by suturing the fascia on either side. The skin was closed and sealed with collodin, gauze dressings being purposely omitted because of the proximity of the rectum and consequent danger of infection.

The age of the child and length of the operation

formed a serious problem in the administration of a general anesthetic. By the skilful administration of warmed ether and oxygen in the hands of Dr. Barnet Joseph the patient was kept under narcosis for one hour and fifteen minutes without the least sign of shock or untoward after-effects. The wound was completely healed in ten days and the happy results are shown in figure 2.

If, when confronted with such a case, spina bifida can absolutely be ruled out, the question naturally arises, are we dealing with a malignant neoplasm. The chief diagnostic index of a malignant

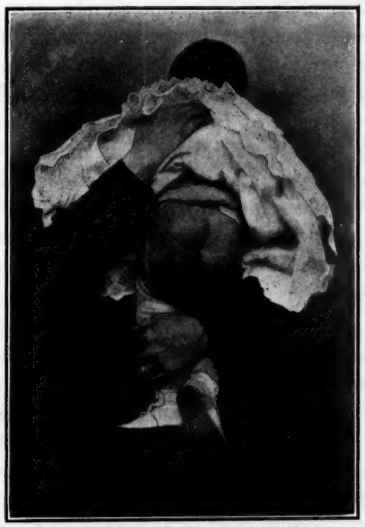

Fig. 2. Showing Result After Removal of Sacral Tumor.

tumor is its progressive growth. This, of course, is absent in a simple congenital sacral tumor. However, Murphy observes that sudden enlargement may occur, due to a mild infection which does not frankly manifest itself, and may be taken for excessive neoplastic activity. This author further observes that although these tumors are very properly regarded as benign, it should be remembered that they sometimes contain testicular and mammary tissues—structures which may easily undergo malignant degeneration. In the case at hand the tumor grew from birth on. This growth, in my opinion, was due to accumulating sebaceous secretions of the skin, because there was absolutely no evidence of infection.

Spina bifida usually carries in its train cardinal symptomatic features which should prevent error in diagnosis—these are paralysis, convulsions, and more or less of hydrocephalus. Pressure on such a tumor produces a bulging of the fontanelles. The child's mentality is observed to be seriously impaired.

X-ray examination may go a great way to assist in making the diagnosis.

Prognosis is good in proportion as the tumor is simple and in little relation with the structure in the spinal canal. Generally speaking, it is well to keep in mind Tedenats' figures with regard to the danger of these growths. He claims that three-fifths of the children so affected die before they reach their third year from surface ulcerations and consequent infections.

SURGICAL TREATMENT OF EPILEPSY; WITH REPORT OF A CASE.*

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In cases of Jacksonian, or true focal epilepsy, where there are distinct localized symptoms referable to one or more of the motor centers grouped about the fissure of Rolando, surgical interference is not only clearly indicated but is followed in many instances by the very best results. True, it often happens that excision of a given center will be followed not only by the cessation of the epileptic seizures but also by a paralysis of the motor district over which the center presides. Let me urge that this possible effect should be clearly explained to the patient or the friends, otherwise, the surgeon is liable to be unjustly and severely blamed when the patient awakens to find himself free from epilepsy but with a paralysis in its place.

It is not with this form of epilepsy, however, that we have to deal in the present instance, but with a general epilepsy of peculiar interest which occurred in the practice of our colleague, Dr. C. P. Byington, of Ossining, who has kindly supplied the medical history, and whose permission has made it possible for me to present this report.

Mr. X., aged 30, ten years ago was struck above the right eye with the handle of a stable pitch fork; the blow caused a depressed fracture over the region of the frontal sinus, and left an adherent skin scar. From this injury he completely recovered, and for ten years he continued in the enjoyment of apparently good health. Suddenly on December 14, 1908, he began to have a series of epileptic convulsions numbering from two to five or six daily, mostly general in character, though at times they were more marked on the right side of the body.

Examination showed the patient to be free from renal or other disease; there was some constipation and evidence of imperfect gastro-intestinal function which was attended to by the administration of

* Read before the Westchester County Medical Society, January 19, 1909.

eliminatives, which treatment was followed by no improvement in the condition. A peculiar clinical feature was a persistent bradycardia, the pulse rate being from 46 to 58 per minute.

Taking into consideration the injury and finding nothing in the individual or family history which would explain the occurrence of the epilepsy, Dr. Byington did me the honor to consult me as to the advisability of surgical interference.

Basing my opinion upon the fact that as far back as May, 1894, (*Sajous Ann. Univ. Med. Sci.*, 1894) I had a case of an epileptic, who during a fit fell and fractured his skull, and that after trephining and removing an extensive portion of the bone over the Rolandic fissure, the patient remained free from seizures for some time; and another case of a young German who was developing epileptic insanity and whose relatives, hearing of the first case, requested an operation, with the result that after exposing the Rolandic fissure on both sides of the brain and thoroughly pricking the cortex with a sharp needle, he remained free from all epileptic manifestations for many months; and the further fact that in my capacity as Visiting Surgeon to the State Hospital for the Insane, King's Park, L. I., I have had repeated opportunity of witnessing the beneficial effect of any surgical procedure in epileptics; I advised operation, with the statement that it might prove only temporarily successful.

While Dr. Byington's case could in no way be designated as Jacksonian in nature, still the traumatism and the lack of any other causative influence, made it seem just to associate the present outbreak with the old injury. There was, moreover, a very promising feature in this instance, *i. e.*, the patient had not had time to acquire what Rosanoff so aptly describes as the epileptic habit.

Accordingly on November 24, 1908, in the presence of the staff of the Ossining Hospital, the patient was anesthetized and a flap raised over the seat of the aforementioned depressed scar. With mallet and chisel and the de Vilbiss rongeur, an opening was made in the skull approximately the size of a silver dollar. The inner table was depressed and the dura mater was found to be adherent to the bone for some distance, there was no sign of pulsation. Upon freeing the adhesion, pulsation was immediately established. After trimming away spiculae, the wound was closed, without replacing any of the bone.

The patient made an uninterrupted recovery and has had no epileptic manifestations since. It is worthy of mention that the pulse became more rapid after the operation, the bradycardia having disappeared.

Taking the case as a text I beg the privilege of expressing a few short comments anent the subject.

1. Fourteen years since, I was of the opinion that, cortical irritation being the acknowledged cause of general idiopathic epileptic explosions, counter-irritation by pricking the brain over the motor centers might bring about a cure. Since that time I have entirely given up this view, and am now of the opinion that any surgical procedure, even a skin incision, will often, for a time, check epileptic manifestations. I can offer no explanation of this phenomenon, but simply state that it is an oft-observed fact in the experience of others as well as myself. Even the administration of an anesthetic without operation is not infrequently followed by a period of freedom from symptoms over days and in some cases weeks or months. These facts probably explain the apparent cures brought about by partial removal of the thyroid gland. Unfortunately there is no certainty of a permanent result and in most cases sooner or later the convulsions return.

2. In cases such as the present one, especially where an epileptic habit has not been established, I advise operation over the seat of the old injury and the relief of existing adhesions or other cause of pressure. These cases promise better results and the operation, if properly performed, is free from danger and in case of non-success leaves the patient in no worse condition than before.

3. In this, as in all brain surgery, the great danger and cause of failure and high mortality is brought about by two agents, shock and sepsis. Shock will be avoided by rapid work, and by care not to jar the brain by rough use of instruments.

Without going into the matter more deeply let me say that I know of no better cushion during the use of the mallet and chisel than the hands of an assistant. No mechanical means can replace them. The choice of instruments is largely a personal matter. Germans use the chisel, Americans the electric motor, etc. Whatever be the choice, gentlemen, *consistent rapidity* and *ultra-rigid asepsis* must be practised.

75 WEST 55TH STREET.

POST-OPERATIVE RETENTION OF URINE.

In case of retention of urine we resort to the catheter only as a last resort. Patients are allowed to sit up or to stand up to urinate unless there is some strong contraindication. Otherwise a half drachm of sweet spirits of niter given every half hour will generally evoke spontaneous urination.—JOHN C. MUNRO in *The St. Paul Medical Journal.*

THE HOME OF EPHRAIM McDOWELL IN DANVILLE, KY.

The * shows the room (according to tradition) in which, in 1809, he performed the first ovariotomy—the first real laparotomy. [Photograph made recently by Wm. Wade and furnished through the courtesy of Dr. W. H. Cooper, Oakmont, Pa.]

The medallion, of which the obverse and reverse are here reproduced, was designed by Dr. Robert L. Dickinson, Brooklyn, for the banquet held in New York by the American Gynecological Society on April 22, 1909. At that banquet—the Centennial Celebration of the Foundation of Abdominal Surgery—appropriate addresses were delivered, and the following poem was read by DR. SAMUEL M. BRICKNER, of New York.

EPHRAIM McDOWELL IN 1809

I.

This was the golden year of al the years
  When from the generous womb of Time, there sprung
That one, who midst the nation's tears and cheers,
  The weary shackles from the negro flung.
Within the selfsame hour that gave him birth
  Upon the selfsame soil there was begun
An era soon to quicken all the earth:
  A newer freedom for mankind was won.

II.

Oh, happy Time! Oh, happy Blue Grass Land!
  That twice within one year thou shouldst unfold
Two mortals of the blest Elysian band
  For lesser mortals reverent to behold:
The one—foredoomed—in war to forge the claim
  That liberty of man is no mere phrase;
The other, too, of now undying name,
  By golden courage, a new path to blaze.

III.

This, then, this was the year of all the years
  When, with conviction born of fear and hope,
McDOWELL dried the fount of woman's tears,
  And widened stricken woman's horoscope.
Who knows the agonies of heart and soul,
  Who knows the torturing ferment of his mind,
Until achievement left him at his goal,
  Till, Jacob-like, his angel lay behind?

IV.

No listening forum to acclaim his speech,
  No throngs of men to greet him wild with cheers;
No frantic effort his brave hand to reach,
  No tumult, save the stupid mob's rank jeers.
And yet his was the eloquence divine,
  In every hamlet still it vibrant rings
Where Hope is born of woman's fear malign,—
  To multitudes its sweet-voiced message brings.

V.

The while we marvel at his magic skill,
  Conceived in boldness, aye, and born in need,
Our wonder grows and is the greater still
  That outcome blest and safe should be his meed;
For no Listerian comforts hedged him 'round,
  No marble walls or glass-encircled domes:
His amphitheater was the forest ground,
  His trained assistants were some woodland gnomes.

VI.

The Victory Titanic, his to know,
  The flower and the fruit thereof are ours:
For thus, by gift on gift, does our Art grow,
  The splendid gifts of great men's splendid powers.
For since the Hippocratic days, the right—
  Though not at once perceived by all the crowd—
Has always made fair Medicina's might;
  By truth has thus our Art been best endowed.

VII.

The soldier on his breast his bravery wears,
  The statesman is the idol of the hour,
The poet, e'en, his laurel proudly bears,—
  The people love their honors wide to shower.
But he, this hero whom we celebrate,
  What crown is his beyond an honored name?
His first reward was but an ardent hate,
  Instead of praise, suspicion, fear and blame.

VIII.

He sought no favor from the hostile mob,
  He sought no solace from the angry crowd;
His inspiration was a woman's sob,
  From life's gray sky, he brushed away a cloud.
Clean, straight and fearless, like a knight he stood,
  Like Lincoln, he but strove to see the right:
Let us acclaim this giant of the wood,
  Who struggling through the darkness, found the light!

* * * * *

And see, the dawn has broken through at last,
  A century's darkness turns to radiant light,
Effulgent stands this master of the past,
  Resplendent in the majesty of right.
For fairness, now and justice, have their hour;
  To-day we hail him an immortal one:
We place him high as Surgery's fair flower—
  America's, the world's, illustrious son.

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WALTER M. BRICKNER, M.D., Editor

NEW YORK, JUNE, 1909.

THE TALMA OPERATION FOR CIRRHOSIS OF THE LIVER.

A recent review of the subject by Bircher (*Medizinsche Klinik*, March 28, 1909) drives home the fact that the last word has not been said about this operation. It is therefore incumbent on internist and surgeon alike to be well acquainted with the principles of an operation that has been widely practised on the continent for fifteen years.

The operation, first performed by Talma in 1889 (and called also the Talma-Drummond-Morison operation) intends to create a permanent channel to lead away ascitic fluid from the abdominal cavity. Nature sometimes attempts this, and anastomoses between the branches of the portal veins and those of the superior vena cava have been found by Recklinghausen, Westenhoefer, and others. Invariably, however, these attempts are unsuccessful. By relieving ascites, the Talma operation intends at the same time to relieve the gastro-intestinal hemorrhages that not seldom result in death, and frequently cause weakness and discomfort. The results of the Talma operation (with its numerous modifications) may be seen by combining the statistics of six of the largest reported series of cases. These make a total of 1,565 cases, of which 30.4 per cent. were cured; 19.8 per cent. relieved; 39.2 per cent. unrelieved; and 10.6 died. In the various reports there is a general agreement in the percentage of cures. The greatest variation—5 per cent. to 23 per cent.—is in the percentage of deaths, and this is found to depend on the variation in the length of the post-operative period in which the different mortality statistics were based.

Employed as it has been in stenosis of the main trunk of the portal vein, in cardiac cirrhosis, in Banti's disease (where it has been combined with splenectomy), in pericarditic pseudocirrhosis of the liver, the operation finds its chief indication in the atrophic and hypertrophic cirrhoses with ascites or with gastrointestinal hemorrhages, or with both of these symptoms. It is still a moot question whether obstruction to the portal vein leads to ascites. The poor results from operations recorded in many cases have been considered by some writers to indicate that the ascitic fluid is an exudate due to peritonitis, either simple or tuberculous. But unquestionably many of the cases present a transudate. Lieblein differentiates between the latter and exudate by determining the specific gravity and the albumin content of the ascitic fluid, and he makes his indications for operation accordingly. It would be of value to combine with these examinations a study of the morphology of the contained cells and of the bacteriology of the fluid. Whatever the theoretical considerations, the fact is that two grave symptoms—ascites and gastrointestinal hemorrhage—are, in 50 per cent. of the cases operated upon, either cured or relieved. The disease of the liver is, of course, unaffected, but the operation may afford a prolonged period of well-being and relief to patients who are suffering from serious symptoms.

The operative mortality will always remain high because the majority of the patients subjected to the operation are in a debilitated condition, with advanced visceral disease Talma gives as contraindications to operation a high grade disturbance of liver function (as shown by urobilinuria and alcoholic stools), icterus, xanthoma, and pruritus; but many other writers do not agree with him. Certain it is that the earlier in the stage of ascites the operation is undertaken, the greater are the chances for a permanent good result. Talma operates after two abdominal paracenteses have been ineffectual. Most of the surgeons exclude syphilitic cases from operation, but Ladenberger, who has collected the largest series, does not concern himself with the etiology as an operative indication.

It is undesirable to exclude from the liver too large a quantity of blood. In some of the cases operated upon this seems to have happened for such symptoms of poisoning as delirium, convulsions, and coma have ensued. Talma avoids these

manifestations by feeding the patient, post-operatively, on an albumin-free diet.

Talma's technic is simple. He fastens a tongue of omentum to the parietal peritoneum. The operation can readily be performed under local anesthesia. Some operators scrape the parietal peritoneum to obtain broad adhesions. Others, in addition to the omentofixation, ventrofixate the gall-bladder or spleen as well. Narath draws a strip of omentum 10-15 cm. long through a small peritoneal opening and makes a subcutaneous pocket into which the omentum is tucked. The advantages he claims are: 1. that the omentum is brought into the neighborhood of numerous veins, and 2, that blood is more readily expressed from the abdominal cavity. However, the mortality from this procedure has been high, and there is danger of hernia and of rupture of the wound. Numerous other modifications mave been devised, but the simple Talma operation at present offers the best chances for success, inasmuch as it has given good results in a disease whose operative mortality, by any method, is high.—H. N.

THE WILLIAM T. BULL MEMORIAL.

The committee of representative lay and medical men that has undertaken to collect a substantial sum for the creation of a memorial to the late Dr. William T. Bull has wisely decided upon a department of surgical research as the most suitable and useful monument to his memory.

"Having in mind his noble character and his great talent and the untiring energy which enabled him to distribute the benefits of his knowledge and skill among so many—and in the majority of instances with little or no remuneration—it seems fitting for his associates, his students and those who owe their health or life to his mind and hands, to unite in erecting a memorial which shall typify his life and be an active and undying agency, not only for the perpetuation of his name, but for the furtherance of that art and science to which his life was devoted. . . . The most active and progressive men in the medical profession, and among them Dr. Bull, have long felt the need of some organization similar to that existing abroad, particularly in Germany, for correlating the clinical branches of medicine with the organized laboratories"

It is therefore purposed to establish a department where, in close relationship with clinical work, surgical problems will be pursued from all standpoints of pathology, bacteriology, chemistry, physiology and anatomy. Little or no money will be expended for the erection of buildings. Practically all the income of the foundation will be applied (for salaries to those carrying out the work for publications, etc.), to studies in the New York College of Physicians and Surgeons—to which institution Dr. Bull devoted his best years, and in such hospitals of New York City as afford proper facilities.

While geographically the activities of the foundation will thus be limited, it will, no doubt, afford opportunities to investigators from various places, and its ultimate benefits will be universal. This journal is therefore doing what it can to help a doubly commendable purpose—a lasting memorial to a great American surgeon, and an institution for American surgical research! And it urges its readers also, and their public-spirited friends, to contribute to the fund now being collected. The committee hopes that many will aid—those who can give but little, as well as those who can give much. (No subscription list will be published.) Contributions may be sent to the treasurer of the fund, Mr. George C. Clark, Lincoln Trust Company, New York, or to the secretary of the committee, Dr. John B. Walker, 33 East 33rd Street, New York.

Surgical Suggestions.

In surgical shock strychnine and alcohol aggravate the condition.

Syphilis simulates nearly every other surgical disease, and the most virtuous are subject to its ravages.

The presence of diabetes should not deter the surgeon from giving a patient with that malady the benefit of relief from a surgical disease.

In operating for intestinal obstruction in the colon the first thought should be to save the life of the patient. This can often best be done by making an artificial anus. Too many patients are sacrificed to the surgeon's zeal to do a complete and mechanically perfect operation at once.

Gangrene of the extremities may be due to senile changes; local infection; mechanical injury to bloodvessels; tumors; diabetes; constitutional infective febrile disease; poisoning with ergot, lead, phenol, arsenic or tobacco; syphilis; trophic cord lesion; Bright's disease; leprosy; embolism; frost; ainhum; or Raynaud's disease.

Book Reviews.

Appendicitis and Other Diseases of the Vermiform Appendix. By HOWARD A. KELLY, M.D. Large octavo; 502 pages; 215 original illustrations (some colored) and 3 plates. Philadelphia and London: J. B. LIPPINCOTT COMPANY, 1909. Price, $6.00.

The encyclopedic work by Kelly and Hurdon on *The Vermiform Appendix and Its Diseases* has become so familiar in the four years it has been before the profession that a detailed description is unnecessary of this abridged edition of that work. Kelly "endeavored in preparing the first edition . . . to make that work a great storehouse of well-digested facts. . . . It soon, however, became evident that a compact *résumé* dwelling with especial care on the practical side of the subject would better meet the daily needs of the great army of general surgeons throughout the country."

To call this large book a "compact résumé" on appendicitis, except in comparison with its still larger predecessor, would convey a misleading notion of its character. Like the first edition it is a mine of information on the clinical aspects and on the surgery of appendicitis; and it contains the same numerous and beautiful illustrations by Brödel, Horn, Becker and Ruth Huntington—which by themselves almost constitute an illuminating work on the anatomy, pathology and operative treatment of appendicitis and its complications! Although this edition is not, like the first, exhaustive, it is extensive, and fairly "comprehensive."

Aside from elisions the text has not been much altered. The clinical section has been revised, however, by Dr. Walter Burridge, who has also added a few paragraphs on *Senile Appendicitis.*

In his description of the methods of removing the appendix we are somewhat surprised that, at this date, Kelly emphatically states that "it is important to avoid . . . the simple ligation and amputation, leaving the mucous membrane exposed, whether sterilized or not." And this in the face of the fact, which Kelly does not state (he enters into no argument in the matter) that the safety of this procedure has been demonstrated, microscopically, by Seelig and, clinically, by abundant experience. While, "simple" (properly, "crushing") ligation of the stump and cauterization of the mucosa is not practiced by more than a small percentage of surgeons it has been for ten years or more, as an example, the routine procedure with all the surgeons attached to one of the largest hospitals of New York City—an institution in which appendicitis is the most common surgical malady—and not once has it been shown there that this method is productive of adhesions, fistula or other complication. Moreover, the method does not "leave the mucous membrane exposed," properly speaking; it is destroyed by the ligature and the cauterant.

We find brief reference to Morris' point of tenderness (over the right lumbar ganglia), but we have failed to find mention of pain in the appendix region upon upward pressure over the descending colon, described as a diagnostic sign by an American surgeon and by Rovsing. Meltzer's name is not mentioned in the description of his sign, which Kelly credits to McMonagle, as a personal communication. Concerning localized skin sensitiveness as a diagnostic aid we find only "Cutaneous hyperesthesia is regarded by Blos as a symptom of great importance"; and the succeeding sentence: "Where cutaneous hyperesthesia, muscular rigidity, and localized or general pain are present, peritonitis will always be found"—which cannot be accepted as a clinical dictum.

We have selected these points for criticism merely to indicate that the book deserved a more painstaking revision. Essentially, however, it is a complete, luminous guide on the clinical and operative aspects of diseases of the appendix.

The publishers and the proof-reader deserve to share praise with the author and the artists. The book is quite as handsome as the earlier issue, which was universally commended. We cannot understand, however, why the method of emphasizing words by spacing the letters, generally employed in German books, has again been given preference to italics or other distinctive type. Surely, it is ugly and if not confusing, it at least fails to make the words sufficiently prominent!

The Popes and Science. The History of the Papal Relations to Science During the Middle Ages and Down to Our Own Time. By JAMES J. WALSH, M.D., Ph.D., LL.D., Professor of the History of Medicine and of Nervous Diseases at Fordham University School of Medicine; Professor of Physiological Psychology at the St. Francis Xavier's and Cathedral Colleges, New York, and Lecturer on Biology at the Catholic Summer School of America. Octavo; 430 pages. New York: FORDHAM UNIVERSITY PRESS, 1908. Price, $2.00 net.

It has been the generally accepted opinion that the Roman Catholic Church from the fourteenth century on, has been opposed to scientific investigation, particularly along medical lines. The reason for so erroneous an idea appears to have been fostered by frequent reference to the famous Galileo case which has been held up for centuries as an accusation against the Church by those who have not studied the facts thoroughly. Professor Huxley remarked in 1885 that from careful investigation of the Galileo incident he was led to believe "that the Pope and the College of Cardinals had rather the best of it," and Cardinal Newman, without trying to defend the Church, remarked that "this very case sufficed to prove that the Church did not set herself against scientific progress, but was the one exception which proved the rule." Moreover, the opinion generally held in regard to papal leniency and encouragement of science has been engendered by the writings of such men as Dr. Andrew D. White, who attempts to explain the Catholic attitude on premises not substantiated by the real facts.

Professor Walsh's book will stand as a correction for all time of the prevalent idea as to any former narrowmindedness on the part of the Catholic Church in its attitude towards medical or any other science. His statements are irrefutable, for they are facts gained at a great expense of labor and patience, standing as truths which cannot be turned aside by any ultra-mundane observations of pseudo-scientists. The book is essentially a revolutionary one in the history of science and is a serious contribution to scientific literature. It will be appreciated not only by physicians who desire a truthful presentation of medical history, but also by countless educated Catholics who, up to this time, have been of the same opinion as their brothers outside the Church—that Catholicism and science were widely opposed.

All the fourteen chapters which make up the book are written in an entertaining style. In the introduction Dr. Walsh shows that the universities, which were the outgrowth of the Cathedral Schools, where teachers belonged mainly to the clerical order, contained the names of many scientific men on their roster, among whom may be mentioned William of Salicet and his pupil, Lanfranc, professors in medicine and surgery in the Italian universities and in Paris during the thirteenth century.

In the chapter entitled, *The Supposed Papal Prohibition of Dissection,* the writer says "There is a very general impression that the Roman Catholic Church was, during the middle ages, opposed to the practice of dissection, and that various ecclesiastical regulations and even papal decrees were issued which prohibited, or at least limited to a very great degree, this necessary adjunct to medical teaching. . . . The persuasion as to the minatory attitude of the Church in regard to dissection is very widespread among even supposedly well-educated men. . . . This false impression has been produced by writers in the history of science who have emphasized very strongly the supposed opposition of the Church to science. . . . That statements of this kind should have been made by men of distinction in educational circles and should have passed current so long, is only an additional evidence of an intolerant spirit in those who least suspect it themselves and are most ready to deprecate intolerance in others." Dissection was extensively practiced by Mon-

dino, whose book on anatomy was universally used in the fourteenth century, and other anatomists were given the consent of the Church to carry on their work with certain restrictions which in no way hindered science, but merely protected society from overzeal and exaggerated enthusiasm.

The Practical Medicine Series, Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Volume II. **General Surgery.** Edited by JOHN B. MURPHY, A.M., M.D., LL.D., Professor of Surgery in the Northwestern University, etc., etc. Duodecimo; illustrated. Chicago: THE YEAR BOOK PUBLISHERS, 1909.

This volume is a comprehensive survey of the year's progress in the various branches of surgery. The editor's experience gives him unusual ability to select the wheat from the chaff in the vast material he has to thresh out. What is especially admirable is the prominence he gives to that class of surgical work which is, as yet, in its experimental stage. However, it is surprising that in some parts of the book so much space should be devoted to untenable hypotheses and so little space to actual work done. For example, in the section relating to the etiology of carcinoma, a page is given to one hypothesis that syphilis is the causative factor and to another making the tubercle bacillus the etiological factor; and no mention is made of Ehrlich's magnificent work on cancer transplantation. By far the larger portion of the volume is devoted to abstracts from the literature, here and there the opinions and experiences of the editor are parenthetically presented.

The subject-matter is divided into: Anesthesia, Radiography, New Instruments, Operative Technic, Wound Healing, Tetanus, Anthrax, Tumors, Bloodvessels, Bones, Head and Neck, Thorax, Abdomen, Hernia, Kidney and Bladder, Extremities. From the wealth of material an attempt will be made to select some data of special interest. Spinal anesthesia is being employed very extensively on the Continent. But the dangers in the employment of spinal anesthesia are still great, and ether is at present the best and safest anesthetic. For the treatment of certain wounds and abscesses trypsin has been advocated by Muller, Jochman, and Baetzner; some excellent results have been obtained, but the work is as yet in its infancy. De Keating-Hart's fulguration for carcinoma is being tried by many surgeons, but reports as to its efficiency vary, and the results are still doubtful. Considerable space is devoted to Crile's work on hemolysis in carcinoma; no mention is made that a number of other observers were unable to obtain his high percentages of positive results. The cancer problem is entered into in considerable detail, especially the questions of infectivity and contagiousness, of geographical distribution, and of trypsin treatment. Matas' operation for aneurism continues to give excellent results. It is interesting to note that of 52 operators who have tried his method, 49 are American. Braun reports a remarkable case of a neuroma of the sympathetic, in which he resected a portion of the abdominal aorta involved in the growth, and performed a circular suture of the divided aorta; the result was perfect. Lexer's astounding work on the transplantion of whole joints and bones has recently appeared and, if his results are verified by others, it will open an enormous field for plastic bone surgery.

Wood's ingenious skull drill for making osteoplastic flaps is described; also the technic and diagnostic value of brain puncture. Payr's treatment of hydrocephalus is as yet in its experimental stage. The editor does not take up the subject of brain tumors, in the treatment of which no great advance in the past year has been made; it should be mentioned, however, that several excellent results have been reported in tumors of the ponto-cerebellar space. This field at present offers the best possibilities for surgical treatment of brain tumors. The results of alcohol injections for trifacial neuralgia have been good; on the contrary, the end-results of the Gasserian ganglion operation have not been brilliant. Operation on the thyroid, especially by Kocher and by the Mayos, have given excellent results, cases of Graves' disease not excepted. No new developments in the treatment of breast tumors have been reported. Rapid strides in thoracic surgery have been made in the past year. The Brauer and Sauerbruch cabinets are being thoroughly tested. Elsberg has shown, experimentally, and on human beings, the value of the prone posture whenever the pleura has to be opened. The question of sition, and continuous enteroclysis. Bovée reports what the etiology of pulmonary embolism has not been cleared up; but the bold attacks made directly on the pulmonary artery by Trendelenburg open up a new field for surgery in a class of cases heretofore invariably fatal. Several successful cases of suture of wounds of the heart have been reported.

Murphy has thoroughly covered the modern views on perforative peritonitis, and reports brilliant results with rapid operation, drainage and no irrigation, Fowler's position, and continuous enterocylsis. Bovée reports what appears to be the first case of suppurative gastritis successfully treated (by incision and drainage). Various reports show that the operative mortality in carcinoma of the stomach is lessening. The Murphy button is still being used very extensively in gastrointestinal surgery (although mention should be made of the statements of many of the surgeons of the greatest experience in this field that they almost invariably rely on suture methods). Much has been written about appendicitis, but of this there is little that is new. New technical points have been presented in the surgery of prolapse and carcinoma of the rectum. It is interesting to note that Judd, in reporting a large series of cases of hernia from the Mayo clinic, finds that the old Bassini operation gives very satisfactory results in most of the cases. Radical extirpation of bladder tumors has been practiced by several operators in the past year, but the end results cannot at present be stated; at the operation C. H. Mayo advises wide opening of the peritoneal cavity.

Despite a number of studies, the pathology and treatments of "stiff and painful" shoulders is as obscure as ever. In fractures about joints, briefer periods of immobilization and open operations are being more widely applied; radiography is indispensible throughout the treatment.

Manual of Operative Surgery. By H. J. WARING, M.S., M.B., B.Sc. (Lond.), F.R.C.S.; Senior Assistant Surgeon, St. Bartholomew's Hospital. *Third Edition.* Duodecimo; 750 pages; 521 illustrations, several of which are in color London: OXFORD UNIVERSITY PRESS, 1909.

In order to confine this volume within reasonable dimensions, the author has limited himself to the description of only the more important and well recognized operations. Each description is prefixed by a short account of the indications for operations. The descriptions are clearly written, important details are well brought out and on the whole, the views expressed are sound.

The main objection we offer against the book is a decided lack of up-to-dateness. This is particularly evident in the inclusion of operations that are no longer in general use, and the omission of more modern operative methods. As instances of the former, we may mention, among others the Roux Hople method for femoral hernia, the Kocher method for amputation of the tongue, and the Heinecke-Mikuliez pyloroplasty. It is surprising to note that the author still advises the blind incision of Gimbernat's ligament to relieve strangulation in femoral hernia, and irrigation of the peritoneum in septic cases with 1-4,000 biniodide of mercury or 2 per cent. carbolic acid solution. The latter recommendations, we believe, are now regarded as positively dangerous. The description of the operative treatment of appendicitis is that practiced in this country ten years ago. On the other hand, such universally accepted operations as Koder's gastrostomy, the inversion of the tunica vaginalis for hydrocele, Finney's pyloroplasty, Brophy's operation for cleft palate or any of the forms of osteoplastic operations are not mentioned. To our view the greatest evidence of lack of modernity in this book is the repeated mention of such terms as "using antiseptic precautions," "dressed with aseptic gauze," etc. The repeated use of these phrases has no longer any place in a modern book, even in an undergraduate's manual.

Despite these criticisms, the book possesses many solid merits and can be safely recommended to students.

Progress in Surgery.

A Résumé of Recent Literature.

A Modified Fistula for Permanent Suprapubic Drainage. W. G. ECKSTEIN, New York. *The Post-Graduate,* May, 1909.

Eckstein has previously published (*The Post-Graduate,* September, 1908) a method for the relief of hopeless cases of urinary incontinence, consisting in closing the urethra by suture and draining suprapubically by a permanent fistula. In this later communication Eckstein describes a method of making a non-leaking permanent suprapubic fistula. It is in some respects a modification of the idea of Hunter McGuire. It has given perfect satisfaction in the one case in which the author employed it, so that after a lapse of eight months the patient is vastly improved and declares himself to be perfectly comfortable.

The bladder is opened through a median incision. Whether or not an intravesical suture is made, the fistula is constructed as follows: A 24 to 28 French catheter is placed within the bladder at the lowest end of the vesical incision, and the bladder is closed by the usual suture, remaining open only at the situation of the catheter; the muscle and fascia are then closed by suture in a similar way, thus leaving an opening through the muscle, fascia, and bladder wall at the lowermost end of the incision. The catheter is then bent upwards in the median line and wrapped about closely with gauze saturated with balsam of Peru (to promote granulation). The skin is sewn in the reverse way, beginning at the lowermost angle of the wound so as to allow the catheter to escape at the uppermost angle of the wound. This is allowed to remain *in situ* for several days, when it can be removed and replaced by another. After seven to ten days the catheter may be removed altogether, as there is then established a compressible canal, two to three inches long, running upwards from the water level and large enough to provide sufficient drainage. A pad is worn on a belt so as to make light compression on this canal, which is thereby rendered absolutely water-tight. It is unnecessary and injurious to exert much pressure on this canal. The patient is provided with two or three Nelaton catheters which he carries around with him in a suitable bottle filled with some antiseptic. He can without difficulty insert the catheter through his fistula (owing to its situation and direction) and allow the urine to siphon out. It is also a simple matter for him to daily lave the bladder with some mild lotion.

Movable Kidney, with Details of an Operation for Fixing the Kidney. W. WATSON CHEYNE. *The Lancet,* April 24, 1909.

Movable kidney is discussed from the standpoints of symptomatology, indications for operation and the causes of failure of operations.

A new fixation operation is then described: The patient lies on the back with a small pillow under the loin, projecting it slightly forward; it is not necessary to push the lumbar region very far forward. An incision is then made along the edge of the ribs and an inch below them, beginning about the edge of the latissimus dorsi, or practically just where, looking down on the patient, the anterior surface of the abdomen ends, and from this point it is carried forward parallel to the edge of the ribs for from three to four inches. It is well to make the incision short in the first instance; it can be subsequently lengthened if necessary. The skin and fascia are divided and also the external oblique muscle; the internal oblique and transversalis muscles can be partly separated and partly divided. They only require a little division here and there, and any nerves that are crossing can be pulled out of the way. One then comes down on the transversalis fascia. The fascia is not divided but is pushed towards the middle line, the peritoneum, fascia, and kidney being thus carried forward together. In this way there is less risk of tearing the peritoneum, and we also get at once to the posterior surface of the kidney, which can be easily felt. The edges of the wound being well retracted and the fascia and peritoneum being held well towards the middle line, and the kidney being fixed by the assistant's hand placed in front of the abdomen, the outline of the kidney can be readily palpated. A hole is now made in the perirenal fascia over the posterior part of the kidney, and the renal fat will at once protrude. This hole can now be enlarged vertically over the posterior surface of the kidney, and the fat being pushed outwards or removed the posterior surface of the kidney is exposed. The renal fat is then partly removed and partly pulled forwards with the perirenal fascia and the kidney is gradually shelled out and can be readily brought out of the wound. The posterior part of the wound is then thoroughly cleared from fat till the diaphragm, the psoas, and the quadratus lumborum muscles are fully exposed. The fatty capsule and the posterior part of the renal capsule are thoroughly turned aside (it is well to take away a good deal of the fat in case it should get in between the kidney and the muscles and prevent firm adhesion). The kidney is then turned forwards and incisions are made through the capsule on the posterior surface, as follows: A vertical incision running upwards near the inner side of the posterior surface and curving outwards at the upper part towards the upper and inner part of the posterior surface, and then a transverse incision running across the kidney at the lower end of this vertical incision. The capsule can be stripped off as far as the convex border of the kidney. From each end of the lower transverse incision a small vertical incision is made through the capsule, and then this portion can be pulled down so as to hang downwards from the lower pole of the kidney. The fatty capsule and loose fascia being prevented from getting in between the kidney and the posterior muscles, the kidney can now be turned back and placed exactly in the position which is desired; it can be put up as far as one wishes, and also at the proper distance from the spine. By means of strong catgut or silk stitches the vertical piece of capsule is now stitched down to the muscles behind, taking care not to stitch it too tightly, because the natural tendency of the kidney is for the outer border not to be so closely in contact with the posterior wall of the abdomen as the inner border is. The piece of capsule which is hanging down from the lower pole is then stitched to the muscles below the kidney, and in this way the raw surface of the kidney is kept in contact with the surface of the muscles behind and acquires firm adhesion to them. The capsule at the lower part is strengthened by stitching down the detached portion of the renal capsule so as to form a sort of ledge on which the kidney rests. The kidney having been fixed, the peritoneum is then allowed to fall back into position and a few stitches will generally bring the deeper muscles together, while the external oblique is closely united by two or three mattress sutures and subsequently by a continuous catgut suture.

Apart from the ease with which one can fix the kidney in its proper position by this operation, there is another great advantage in this incision. Everyone is familiar in cases of movable kidney with the difficulty of being certain that all the symptoms are entirely due to that mobility, With the ordinary lumbar incision one cannot as a rule make any investigation of the condition of these other parts, but with the incision described it is quite easy to do so. By making an incision into the peritoneal cavity after having exposed the kidney, one can ascertain the condition of the various parts. And not only can these conditions be diagnosed, but some of them can also be remedied without making a further incision. For example, it is, of course, quite easy to stitch the liver up to the edge of the ribs so as to obtain adhesion between that organ and the diaphragm. And also, the colon can be fixed up to the under surface of the liver at the same time. And then the various conditions in connection with the gall-bladder are quite accessible by extending the incision.

Personal Observations Upon Ureteral Calculi. ALEXIS V. MOSCHCOWITZ, New York. *Medical Record,* May 1, 1909.

Ureteral calculus is a disease added to the domain of surgery, practically only since the discovery of the X-rays.

The number of reported operations for this lesion previous to this period are probably not more than half a dozen. The manifestations of ureteral calculi were included under those of renal calculus; and since the use of the X-rays, a large majority of clinically diagnosed renal calculi are really of ureteral situation.

In text-books the ureter is described as being narrowed at three points: (1) at or about the junction of the ureter and the pelvis of the kidney; (2) at the vesical end, and (3) at the point where the ureter crosses the common iliac artery. These points are of importance because they are the sites of predilection for the impaction of calculi. In addition to these three points Moschcowitz has observed a fourth point, hitherto not sufficiently appreciated. In sixteen out of eighteen of his cases he found a calculus impacted at a point between the vesical end of the ureter and the point where it crosses the common iliac artery, perhaps a trifle nearer to the former. Moschcowitz found this point of constriction of the ureter not to be due to any internal narrowing, but to a dense, sharp, fascial band (sometimes containing a small bloodvessel) which passes inward from the lateral pelvic wall to the median line. It is necessary to divide this band of fascia, in order to mobilize the lowermost segment of the ureter. The constant presence of this band leads the author to the belief that the impaction of calculi in this portion of the ureter is not wholly due to the slight change in direction which the ureter takes in this part of its course. As it occurs in the male and female sex as well, the broad ligament and uterine artery cannot be looked upon as factors in its production.

If the calculus is quiescent, the only symptoms and signs are a constant and fixed pain, with a point of tenderness, either in the back, in the costovertebral angle, or the front of the lateral abdominal wall, and the presence of blood in the urine in microscopic quantities. In the latter stages we have added to these symptoms those of infection. The presence of microscopic blood in the urine is a *very important* symptom of either renal or ureteral *quiescent* calculus. If the calculus is migrating, there arise all the classical symptoms of renal colic, and a greatly augmented hematuria.

It is not commonly appreciated that a calculus situated very near the vesical end of the ureter may give rise to symptoms referable to the bladder. Even long before the calculus has become extruded the patient begins to complain of symptoms of vesical irritation. It is a peculiar physiological phenomenon that when a ureter is the seat of a calculus, the tenderness is not limited to the site of the calculus, but to the entire extent of the ureter.

Moschcowitz refers to the diagnostic possibilities of cystoscopy and of ureter catheterization.

Skiagraphy, properly conducted, is the most important diagnostic measure. Pitfalls which may arise in the interpretation of a given shadow, which may be found upon the plate in the course of the ureter, such as phleboliths, calcified glands, sesamoid bones, and foreign bodies in the intestinal tract; but given a clear history of a urinary calculus and the presence of a shadow in the course of the ureter, the evidence is overwhelmingly in favor of calculus. If doubt exists whether a given shadow proceeds from the ureter or not, additional evidence may be obtained by passing a styleted ureter catheter to the point of obstruction and again subjecting the patient to the X-rays.

No calculus should be permitted to stay indefinitely in the ureter; the eventual outcome must be an infection of the kidney with its inherent dangers.

Anuria is an indication for prompt surgical attack. Moschcowitz is convinced that the so-called reflex anuria due to a calculus in one kidney is an exceedingly rare phenomenon, and that the vast majority of cases of complete anuria due to ureteral causes, are due to either bilateral obstruction or to obstruction in one functionating kidney, from either acquired or congenital causes.

Cases of ureteral calculus are reported, illustrating the various symptoms, complications and indications for treatment. The different modes of attack, dependent upon the site of the calculus, are described, especially the technic employed by the author in the extraperitoneal removal of calculi from the pelvic portion of the ureter. The surgical removal of impacted ureteral calculi is followed by almost ideal results. The mortality in experienced hands is practically nil; the operation is comparatively easy of execution; the period of convalescence is rapid; the patient is immediately relieved of all distressing symptoms, and if the function of the kidneys has not been seriously interfered with by the disease, full return to health will be very probable; finally the danger of a subsequent hernia is so slight, that it does not even merit serious consideration.

Intestinal Anastomosis by Invagination. A. ERNEST MAYLARD, Glasgow. *Annals of Surgery*, May, 1909.

This is presented as a very rapid method of anastomosis. Suppose the case to be one of excision of the cecum. After the resection, the open end of the ascending colon is stitched up. A longitudinal incision is then made in the colon sufficiently long to accommodate the insertion of the divided ileum. Across the patent orifice of the latter a silk suture is passed, like a drawstring; its ends are left long and the free end is passed through the eye of the needle (which thus holds both ends of the suture). The needle is passed through the opening in the colon and up into the lumen of the bowel about two inches, when it is made to emerge. By pulling on the needle, and by a little manipulation, the open end of the ileum is made to pass along the inside of the colon a short distance. While

the "sling" is kept tense the ileum is fixed to the colon by interrupted Lembert sutures around the circumference of the opening of the colon. Unthreading the needle, the sling suture is withdrawn and the orifice of the ileum thus allowed to open out. A ligature is passed around the puncture in the colon, and the anastomosis is thus completed. When invaginating colon into colon an inch or so of the mesocolon (being bulkier than mesentery) must be tied off first.

In this operation, because of the mechanics of the anastomosis, only one row of sutures is necessary, Maylard says. Another advantage, he thinks, in addition to the saving of time, is the lessened danger of contraction at the site of the anastomosis. He is not prepared to deny that the invaginated portion may not be productive of trouble (intussusception), but he thinks the risk is slight. Probably the segment introduced assumes a valve action, thus replacing the ileo-cecal valve in cases of ileo-colostomy. Maylard has performed this operation four times, each with perfect union.

Experiments on the Action of Fibrolysin on Scar Tissue (*Experimentelle Untersuchungen über die Wirkung des Fibrolysins auf das Narbengewebe*). W. BRANDENBURG, Berlin. *Archiv für Klinische Chirurgie*, Vol. 89, No. 1.

From a rather extensive experimental study of the action of fibrolysin on rabbits in which scar tissue formation had been induced by the implantation of sterile plates of colloidin, the author concludes that this drug produces no permanent alteration in connective tissue. He suggests that the brilliant results obtained by some observers may be ascribed to the effect of other methods of treatment

used in combination with the fibrolysin, such as massage and hot air in Dupuytren's contracture, rather than to the action of the drug in question.

Fatty and Villous Proliferation in the Knee Joint (*Ueber Fettgewebs- und Zottenwucherungen im Kniegelenk*). C. RAMMSTEDT. *Archiv für Klinische Chirurgie,* Vol. 89, No. 1.

The author describes a condition in which a simple or inflammatory hyperplasia of the ligamentum mucosum with the plicae alares, leads to a more or less chronic derangement of the knee joint, by virtue of the irritation and limitation of motion produced whenever the free ends of these folds or fatty ligaments become wedged or impacted between the tibial and femoral articular surfaces. In the normal knee the lig. mucosum is narrow and attenuated at its femoral end, but at its patellar extremity, it expands laterally to form wing-like fringes, or membranes—the alar ligaments—which are loaded with fat. A band-like portion attached to the intercondyloid fossa, keeps the fatty masses under proper tension and prevents incarceration of the villous fringes.

Clinically, the chief points of interest are the absence of striking physical signs (there being either none or but slight swelling of the joint capsule), the presence of a very moderate protrusion at either side of the patella, and a minute, or even visually immeasurable amount of limitation in the motion of extension. This last phenomena, when elicited, is of importance diagnostically and is to be explained by the interference of the prolapsed fatty masses. Forcible extension causes pain and the frequent incarceration of the tufts leads to synovitis and fluid exudation.

The condition must be differentiated from floating cartilage, laceration of a meniscus, or a crucial ligament. In these last three lesions, the clinical picture is usually dominated by the typical attacks of acute disorder, that are so well known.

The author performed open arthrotomy with resection of the enlarged villi in three cases with perfect functional restoration in all the patients.

The Veins in Thrombo-angiitis Obliterans with Particular Reference to Arterio-venous Anastomosis as a Cure for the Condition. LEO BUERGER, New York. *Journal of the American Medical Association,* April 24, 1909.

As *thrombo-angiitis obliterans* Buerger has described the condition formerly called *enderarteritis obliterans* and *spontan-gangren* by the Germans. Its management is more than ever becoming a problem for American physicians on account of the tremendous influx into this country of Polish and Russian Jews who, especially, suffer with this disease. He has within the past two years seen over fifty cases and been able to collect clinical data on forty-four of them and has made pathologic studies of twenty amputated limbs. The development of the symptoms is pretty much the same in all cases. Beginning with indefinite pains, numbness and twitchings in the limbs, after the lapse of weeks, months or years, trophic symptoms, ulcers, blebs, etc., make their appearance, there is exquisite pain, on account of which the physician is consulted. Though resembling erythromelalgia and Raynaud's disease in some respects, the clinical picture is so distinct that an attempt should be made to put it in a separate class. The pathologic condition is an obliterating thrombosis of the vessels, chiefly the arteries, followed by organization and healing and an attempt at the production of sufficient collateral circulation. Medical treatment is unavailing where the disease does not undergo spontaneous arrest, and other methods must be invoked. The operation of arterio-venous anastomosis has been done four times with but one successful result, owing, Buerger thinks, to the diseased condition of the vein in the cases attempted. He therefore gives at length his observations on the veins in nineteen limbs amputated for this disease and gives a schematic diagram of the circulation as it is after deflection of the arterial current from the femoral artery into the femoral vein. That the thrombo-phlebitic process has obstructed the superficial vein can be determined with reasonable certainty, but the question of the obliteration of the deeper veins is a most puzzling one. Buerger sees some promise in observing the appearance of cyanosis in the dependant limb and its disappearance ofter the superficial veins are obliterated by a bandage only sufficiently tight to obstruct them, after the limb is elevated. He gives twelve groups of symptoms presented by the patients and points out those most adapted to the operation of anastomosis of the femoral artery with the femoral vein. This requires the presence of conditions for restoring the vascular current and we have to consider the following conditions: the absence of extensive local infection with ascending chronic, interstitial inflammatory process, the suffering of the patient, the uselessness of the limb, the history of the loss of the other limb, the absence of attacks of migrating phlebitis, evidence of arterial occlusion, and the presence of signs indicating that the limb cannot be saved by other means.

Circumscribed Serous Spinal Meningitis. W. G. SPILLER, Philadelphia. *American Journal of Medical Sciences,* January, 1909.

While cases of the above described malady are rather uncommon, the recognition of such cases is highly important for the reason that they are readly amenable to cure by an easy operation. The disease is characterized by the formation of a cyst in the spinal meninges, but nothing is known of the pathogenesis. The symptoms are those of tumor of the cord. The author, in connection with Drs. Musser and Martin, reported the first case in which operation was resorted to. The patient to-day, six and a half years ago, is entirely well. The author briefly summarizes all the reported cases.

The Antitryptic Content of the Blood Serum in Malignant Disease. MARY E. ROCHE, Baltimore. *Archives of Internal Medicine,* April 15, 1909.

In forty-five malignant cases there were 20 per cent. increased antitryptic reactions, while in twenty-two malignant cases, the percentage of increased tryptic reactions was 77 per cent. While these results show that the test is by no means specific, they indicate at all events that a negative reaction is of some significance.

A New Sterilizing Method for the Disinfection of Rubber Gloves and Silkwoven Catheters (*Ueber einen neuen Desinfektionsapparat für Gummihandschuhe und Seidenkatheter*). HEUSNER. *Zentralblatt für Gynäkologie,* April 24, 1909.

Rubber gloves and woven catheters are rapidly ruined by boiling in water. Even steam impairs these articles very rapidly. The apparatus consists of a sterilizer with double walls, between which are wire netting, to prevent overheating of the apparatus. The gloves or catheters are boiled for thirty minutes in pure glycerine, care being taken that they are kept entirely beneath the surface of the fluid. In this fluid sterilization may be repeated innumerable times without affecting the elasticity of the gloves or the smoothness of the catheters. The glycerine may be repeatedly used.

Ligation or Excision of Thrombosed Veins in the Treatment of Puerperal Pyemia. J. W. WILLIAMS, Baltimore. *American Journal of Obstetrics,* May, 1909.

Williams is greatly in favor of this new operation. As he puts it, the mortality of the disease unoperated is at least 66 per cent., and anything offering any hope of improvement is therefore to be hailed with joy.

He has operated upon five cases, all abortions except one, which was a premature birth at the seventh month. Only one patient died. [As in almost all of the cases it appeared sufficient to the operator to ligate only one vein, we must regard his cases as rather mild in type.] The transperitoneal method, and mere ligation (unless marked periphlebitis exists) is advised. A very lucid discussion

of our present knowledge and a list of all the cases reported concludes the paper.

Successful Treatment of Phlegmons of the Hand with Hot Air Baths (*Die Erfolge der Heissluftbehandlung bei akut eitrigen Entzündungen der Hand*). H. ISELIN, Basel. *Muenchener Medizinische Wochenschrift*, April 20, 1909.

Small incisions are made on the palmar and lateral surfaces to evacuate pus, without injuring tendons or nerves; cavities are irrigated with salt solution, and very lightly packed with iodoform gauze; on the very day of operation the hot air treatment is instituted, at first twice daily for two hours, latter only once each day. The dressings are renewed and the affected member placed in the dry hot air bath at a temperature of from 90 degrees to 110 degrees C. Care should be taken to keep the skin in good condition.

By means of this treatment the pain is much reduced and healing accelerated. The necrosis of tendon sheaths is almost entirely eliminated, occurring only once in a woman of 72 with streptococcus infection, in whom a single tendon was lost. The results have far surpassed those obtained by means of Bier's passive hyperemia and hospital supervision is not essential.

Ocular and Orbital Symptoms of Thrombosis of the Cavernous Sinus. EDWARD JACKSON. *Colorado Medicine.* April, 1909.

Thrombosis of the cavernous sinus arises without sepsis from general conditions of the blood, or of the blood pressure. Septic thrombosis occurs by extension from the other central sinuses, from disease of the middle ear, from the nasal accessory sinuses, the tonsils or jaws, as a sequel to furuncles of the lip, cheek, nose, or other parts of the face, or by lesions of the lids or contents of the orbit.

There is an intimate relationship between the cavernous sinus and the nerve trunks and vessels that supply the eyeball and other structures of the orbit.

Anteriorly it receives the ophthalmic vein, the outlet for the veins that unite about the apex of the orbit. Passing through its wall, and separated from its contents by the lining membrane, are the sympathetic fibres of the carotid plexus, the ophthalmic branch of the fifth nerve, the trunks of the oculo-motor and patheticus, and, a little to the outer side, the abducens nerve. The most important symptoms of cavernous sinus thrombosis are those of interference with the functions of these intimately related structures. They include the effects of venous obstruction at the apex of the orbit, paralysis more or less complete of the various ocular and orbital muscles, and pain throughout the distribution of the ophthalmic branch of the trigeminus.

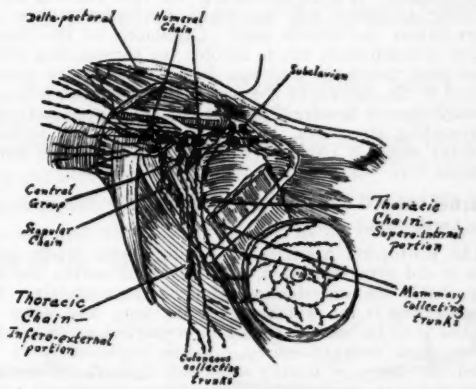
Pain may be the first condition to call attention to involvement of the eye. Occasionally the patient supposes that a foreign body has lodged in the conjunctiva. Paralysis of the ocular muscles may appear early, and the consequences of venous stasis, such as exophthalmos, swelling of the tissues of the orbit and lids and chemosis, are the most constant and significant of the ocular and orbital symptoms. Several cases have been reported where the exophthalmos has disappeared by the development of a collateral circulation, without any establishment of the venous outlet through the sinus. In the great majority of cases both eyes are effected, the thrombosis extending from one cavernous sinus to the other through the circular sinuses. The tendency to involve both orbits is an important diagnostic point, making clear the distinction between orbital cellulitis, or thrombosis of the orbital veins and involvement of the cavernous sinus.

On Intraocular Disease Brought on by Disease of the Nasal Sinuses. H. GRADLE. *Ophthalmology*, April, 1909.

It has been proven that diseases of the nose and particularly of the nasal sinuses may lead to a variety of eye affections. The most common of these are those in which there is no acute ocular lesion but merely symptoms referred to the eye. Obscure pains in and around the eye and obstinate asthenopia are in some cases due to suppuration of some one nasal sinus and cease after its successful treatment. Less common are lesions of the ocular adnexa of nasal origin. It is only in diseases of the lacrimal passages that a nasal origin is the etiology. In a manner less clearly understood but surely shown by clinical results, nasal suppuration, especially in the presence of adenoids, is often an important factor in the production and perpetuation of phlyctenular or scrofulous keratitis. The optic nerve may besides become affected by direct extension of disease from the posterior ethmoid cells or the sphenoid sinues without orbital involvement. Quite a series of cases of optic neuritis either purely retrobulbar or extending visibly into the papilla have been traced to the posterior nasal sinuses. The author presents four cases of choroidal disease with more or less involvement of the retina which were associated with sinus disease on the same side.

Acute Pectoral (Thoracic, Anterior Axillary) Lymphadenitis from Cutaneous Infections of the Lower Lateral Chest and Upper Abdominal Wall. WALTER M. BRICKNER, New York. *Journal of the American Medical Association*, April 24, 1909.

Brickner quotes his Surgical Suggestion (AMERICAN JOURNAL OF SURGERY, April, 1906), calling attention to the occurrence of lymph gland enlargement just beyond the upper outer border of the breast near the edge of the pectoralis major, from skin infections about or above the waist line (*e. g.*, a furuncle from corset irritation). He has observed five cases, all in women. In four the exciting lesion was a furuncle, and suppuration slowly developed in the glands; in the other case infection of a superficial burn over the lower costal cartilages caused the lymphadenitis, which resolved without suppuration. Four of the



patients had previously consulted other physicians, who had regarded the thoracic swellings as neoplasms. In one case a hard swelling in the anterior axillary line of 3 weeks' development, was regarded as a cancer in two clinics. A receding furuncle was found in the waist line on the same side. Just before incising the swelling (for deep suppuration) two experienced colleagues pronounced it an "undoubted carcinoma."

The mistake is most apt to be made in women with large, firm mammæ, in whom the proximity of the tumor suggests its involvement of outlying breast tissue. The lesion is probably more common in women than men because of corset pressure.

The axillary glands are divided into the following groups: (1) humeral, (2) thoracic, (3) scapular, (4) central or intermediate, (5) subclavian. The thoracic, pectoral or anterior group or chain consists of a supero-internal portion, overlying the second or third intercostal space beneath the pectoralis major, and an inferoexternal portion, over the fourth and fifth intercostal spaces, along the long thoracic artery. As will be seen in the cut (after Poirier) "the anterior cutaneous and the mammary lym-

phatics more particularly end in the superointernal group; the absorbent vessels of the lateral wall of the thorax in the inferoexternal group" (Leaf).

It is, then, the superointernal (portion of the thoracic) group which is usually early involved in breast carcinoma. The inferoexternal portion, on the other hand, is affected in cutaneous lesions of the lower lateral chest wall and of the upper abdomen; when inflamed, these glands form a mass over the fourth rib near the outer edge of the pectoralis major, sometimes partly beneath that muscle.

The text-books of surgery discuss acute lymphadenitis in general rather than in anatomical detail. They make no specific reference to the lesion under consideration.

Malignant Tumors of the Tonsils. GEORGE BACON WOOD. *The Pennsylvania Medical Journal,* March, 1909.

Two cases are reported. The first patient had been operated upon years before for enlarged glands of the neck supposed to be tuberculous. When the patient was admitted to the hospital, a diagnosis of malignant tumor was made. The external carotid artery (right) was ligated, the tonsil and a number of enlarged glands removed. Two other extensive operations were undertaken for further glandular involvement, but the patient died after numerous metastases had formed. Microscopical examination showed the tumor to be a spindle celled sarcoma.

In the second case there was a large, round, purplish-red mass projecting from the left faucial region. The carotid artery was ligated and as much of the primary tumor as possible was removed. Eventually the wound healed, but the patient died of metastases some months later. The examination of the tonsil removed showed it to be a very rapidly growing small round-celled sarcoma.

The author was able to find 137 cases of malignant tumor of the tonsil reported since 1884. Sixty-nine cases were sarcoma, sixty-four cases carcinoma and one case endothelioma. It is an interesting fact that sarcoma seems to occur at almost any age while carcinoma seldom appears before the fiftieth year. Carcinoma of the faucial region is much more apt to involve the surrounding structures than sarcoma. Sarcoma has a tendency to remain limited to the capsule of the tonsil and only when it breaks through does it involve the pillars of the fauces and other surrounding structures. A peculiar fact is that sarcoma in many cases is liable to form metastases in the lymph glands.

Tracheotomy. CHEVALIER JACKSON. *The Laryngoscope,* April, 1909.

The profession hesitates longer to advise tracheotomy than it did fifty years ago. The principal reason for this is probably the introduction of general anesthesia. The cough reflex is the watch-dog of the lung, and when the trachea is to be opened, should be preserved or stimulated, rather than drugged asleep. When tracheotomy is decided on, there is usually sufficient dyspnea to demand some voluntary use of the extraordinary muscles of respiration. As complete anesthesia approaches, this voluntary action ceases, cyanosis increases until the respiratory center is paralyzed from over-stimulation, and the patient makes no further breathing effort. The trachea under these circumstances should be opened quickly, preferably by a stab wound.

Wider employment of tracheotomy in the more favorable classes of cases than is now usual, besides reducing its mortality almost to nil, will give us a better conception of its usefulness. The wonderful general therapeutic effect of better oxygenation and the local improvement from putting the larynx at rest can be seen even in such serious conditions as typhoid perichondritis and laryngeal tuberculosis.

The author states that careful attention should be paid to the following points: 1. Preservation of the cough reflex by omission of anesthetics and sedatives. 2. Deliberate work in the midline with careful hemostasis. 3. Careful after-treatment with frequent changing of the dressing. 4. Asepsis. 5. The Trendelenburg-Roser position the moment the trachea is opened. 6. A canula of the proper size and length.

Of one hundred tracheotomies performed by the author, eighty-six recovered. Ten deaths resulted from the conditions requiring the tracheotomy. In three cases death was certainly due to the tracheotomy itself.

Purulent Diseases of the Middle Ear—the Treatment of Meningeal, Sinus and Labyrinthine Complications. S. MACCUEN SMITH. *The Therapeutic Gazette,* March 15, 1909.

Meningitis comprises the most frequent intracranial lesion complicating aural disease, the underlying or primary lesion in the ear being entirely overlooked until a spontaneous rupture of the drumhead liberates a quantity of pus through the external auditory canal. Meningitis from aural disease differs from that due to other causes chiefly in that the symptoms are much more severe and that the disease is amenable to operation. The operative procedure consists in eliminating the focus of the disease by removing all the necrotic bone, including a complete exenteration of the mastoid cells, thus exposing the affected dura. When necessary, the membrane should be incised to provide for the escape of any fluids, just as is done in the serous form of meningitis.

The author believes that a pyemic state does not necessarily mean a sinus thrombosis. He cites two cases of metastatic abscesses of the liver which were traced directly to a suppurative process in the organ of hearing in which, on autopsy, the sinuses were not involved in any way. The consensus of opinion favors ligation of the internal jugular vein when the sinus contains pus, a disintegrated clot or more especially when a thrombus is felt along the course of the vessel.

In labyrinthine suppuration, the mode of infection is usually through the fenestra rotunda, the fenestra ovalis, the promontory or the horizontal semi-circular canal. This invasion may also occur by way of the aqueductus vestibuli, the aqueductus cochleæ and the posterior or superior canal. If during the radical mastoid operation, necrosis is observed to involve or pus is escaping from, one of the afore-mentioned localities, the surgeon, especially in the absence of definite labyrinthine symptoms, will find it hard to decide whether or not operative interference is absolutely indicated. Most of these cases spontaneously recover, with the good drainage provided by the radical operation and the removal of the granulation tissue from the infected window, but one should be careful not to disturb the protective adhesions that limit the focus of the disease to the labyrinth. If the fistulous opening is merely enlarged, the patient will generally recover.

Nerve Involvement in Fractures of the Extremities. CARL S. OAKMAN. *The Journal of the Michigan State Medical Society,* March, 1909.

The lesions resulting to nerves from fractures of the extremities may be immediate—due to contusion, laceration or division—or remote, due to compression by cicatrix or callus. The musculo-spiral nerve is injured by fracture oftener than any other, and indeed constitutes 40 per cent., according to von Bruns, of nerve injuries accompanying fractures.

The pathology of a contused nerve consists of more or less necrosis of the nerve fibers, with hemorrhage into the sheaths and leucocytic infiltration. The continuity of the fibers, as a rule, is not interrupted and hence regeneration is rapid and function is quickly restored. In laceration there is a partial division of the nerve, but the intact fibers serve as a guide for a regeneration of the severed fibers and usually there is complete restoration. When a nerve is completely severed, both ends retract and there is degeneration of the distal portion. The proximal end grows into a nodule the same as occurs in amputation stumps. But the axone of the distal portion probably retains its integrity for a long time, so that when neuroplasty is done, even months after division, it sometimes promptly regains its function and nearly always does, sooner or later.

The symptoms resolve themselves into paralysis and anesthesia of the parts supplied by the injured nerve. The area of anesthesia is often less distinctly delimited, because the overlapping and anastomosis of sensory fibers is more complex than of motor fibers.